

DEPARTMENT OF HAWAIIAN HOME LANDS
STATE OF HAWAII

May 24, 2016

ADDENDUM NO. 2

TO

PLANS, BID FORM, SPECIFICATIONS, CONTRACT AND BOND

FOR

**SCATTERED LOT IMPROVEMENTS FOR FIVE
KEAUKAHA LOTS IN TRACT 1**

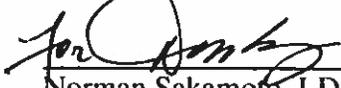
WAIAKEA, SOUTH HILO, HAWAII

IFB No.: IFB-16-HHL-014

NOTICE TO ALL PROSPECTIVE BIDDERS

This addendum is hereby made a part of the PLANS, BID FORM, SPECIFICATIONS, CONTRACT AND BOND for the SCATTERED LOT IMPROVEMENTS FOR FIVE KEAUKAHA LOTS IN TRACT 1, WAIAKEA, SOUTH HILO, HAWAII, and it shall amend the said contract documents as detailed within this Addendum document.

APPROVED:



Norman Sakamoto, LDD Acting Administrator
Department of Hawaiian Home Lands

Date: May 24, 2016

Please detach, execute, and return immediately, the receipt below, to the Department of Hawaiian Home Lands, Hale Kalaniana'ole, 91-5420 Kapolei Parkway, Kapolei, Hawaii or transmit facsimile to (808) 620-9299.

Receipt of Addendum No. 2 for the SCATTERED LOT IMPROVEMENTS FOR FIVE KEAUKAHA LOTS IN TRACT 1, WAIAKEA, SOUTH HILO, HAWAII, is hereby acknowledged.

Signed _____ Title _____

Firm _____ Date _____

ADDENDUM NO. 2

MAY 24, 2016

TO

PLANS, BID FORM, SPECIFICATIONS, CONTRACT AND BOND

FOR

**SCATTERED LOT IMPROVEMENTS FOR FIVE
KEAUKAHA LOTS IN TRACT 1**

WAIAKEA, SOUTH HILO, HAWAII

IFB No.: IFB-16-HHL-014

ITEM NO 1 PLANS

Replace in its entirety the plans that are included in the original IFB with the Plans attached to **ADDENDUM NO. 2 (May 24, 2016)**. The following pages were effected:

Drawing Title	TMK:	Page No.
Keaukaha Tract 1 Improvements	(3) 2-1-021:072	C-2
		C-4
		C-5
	(3) 2-1-021:029	C-9
		C-3
		C-4
		C-5
		C-6
	(3) 2-1-021:100	C-8
		C-3
		C-5
		C-6
	(3) 2-1-021:010	C-11
C-3		
C-6		
C-7		
C-8		
C-12		
C-13		
(3) 2-1-023:071	C-3	
	C-4	
	C-5	
	C-8	

ITEM NO 2 BID OPEN DATE

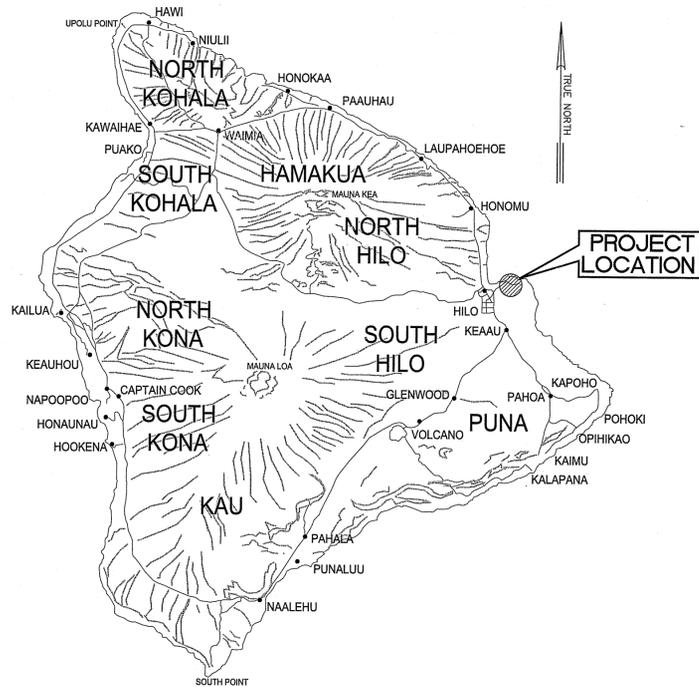
To accommodate this addendum, the bid open date has changed from 2:00 pm, May 23, 2016 to 2:00 pm, June 10, 2016. The location for bid submittal, stated in the IFB, remains the same.

STATE OF HAWAII DEPARTMENT OF HAWAIIAN HOME LANDS

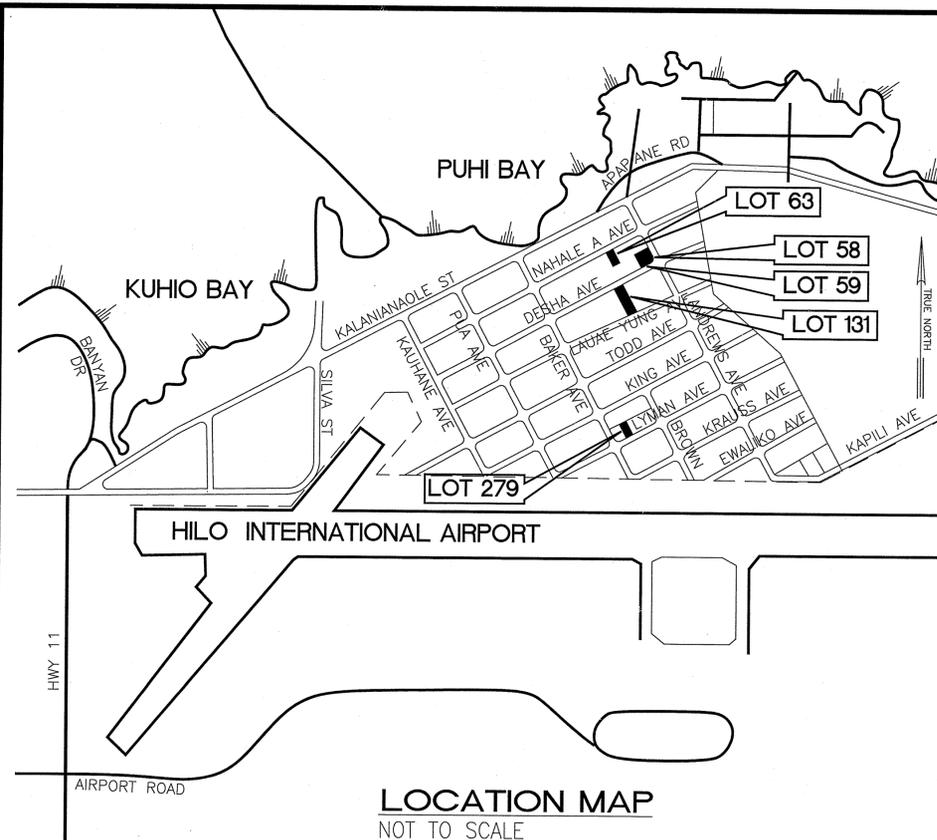
SCATTERED LOT IMPROVEMENTS FOR FIVE (5) KEAUKAHA LOTS IN TRACT 1

LOT 58-B	TMK	3-2-1-021:072	LOT 131	TMK	3-2-1-021:010
LOT 59-B	TMK	3-2-1-021:029	LOT 279	TMK	3-2-1-023:071
LOT 63-A	TMK	3-2-1-021:100			

WAIAKEA, SOUTH HILO, HAWAII
IFB-16-HHL-014



ISLAND OF HAWAII
NOT TO SCALE



LOCATION MAP
NOT TO SCALE

DESCRIPTION	PLAN SHEET NO.
LOT 58.....	1 THRU 10
LOT 59.....	1 THRU 9
LOT 63.....	1 THRU 12
LOT 131.....	1 THRU 14
LOT 279.....	1 THRU 9

APPROVED BY:

Wesley R. Sogawa
CHAIRMAN, HAWAIIAN HOMES COMMISSION
STATE OF HAWAII

1/26/16
DATE:

NO.	DATE	BY	REVISIONS

This work was prepared by me, or under my supervision and construction of this project will be under my observation.
Exp. 04-30-16

Wesley R. Sogawa
Wesley R. Sogawa & Associates, Inc.

DENNIS K. W. LEE
LICENSED PROFESSIONAL ENGINEER
No. 4004-C
HAWAII

WRS&A
Civil & Structural Engineers
Wesley R. Sogawa and Associates, Inc.
Committed to Quality Performance & Value

101 Silva Street, Suite 201, Hilo, HI 96720-4755
Telephone: (808) 935-4677 Fax: (808) 935-2070

Project Title: SCATTERED LOT IMPROVEMENTS FOR FIVE (5) KEAUKAHA LOTS IN TRACT 1
Sheet Title: TITLE SHEET

DESIGN BY: DRB
DRAWN BY: DRB
CHECKED BY: DL
APPROVED BY: DL
DATE: 2015
SCALE: AS NOTED
FILE No. W1302.44

DRAWING No.
T-1

SHEET No.
1
OF 10 SHTS.

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS

KEAUKAHA TRACT 1 IMPROVEMENTS

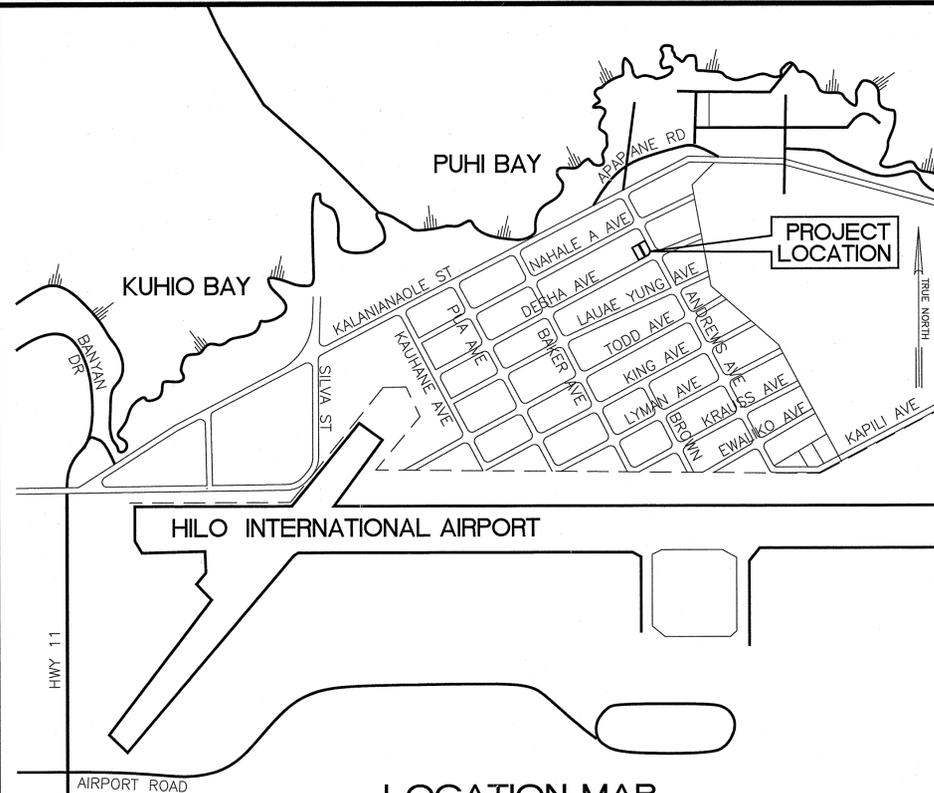
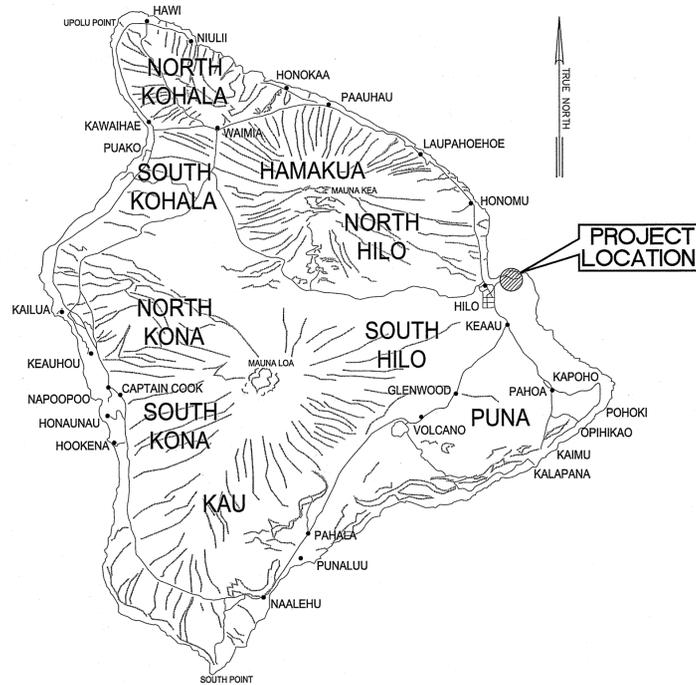
LOT 58-B-1 and LOT 58-B-2

WAIAKEA, SOUTH HILO, HAWAII

TAX MAP KEY: (3) 2 - 1 - 021: 072

IFB-16-HHL-014

SUBDIVISION APPLICATION NO: SUB-15-001465



SHEET NO.	DESCRIPTION	DRAWING NO.
1	TITLE SHEET	T-1
2	MISCELLANEOUS NOTES	C-1
3	WATER NOTES & DETAILS	C-2
4	WASTEWATER COLLECTION NOTES	C-3
5	GRADING AND DRAINAGE PLAN	C-4
6	UTILITY PLAN	C-5
7	SHALLOW DRYWELL DETAILS	C-6
8	SANITARY SEWER DETAILS	C-7
9	EROSION CONTROL (BMP) PLAN	C-8
10	DIMENSION PLAN	C-9

APPROVED BY:

[Signature]
CHAIRMAN, HAWAIIAN HOMES COMMISSION
STATE OF HAWAII

[Signature]
MANAGER, CHIEF-ENGINEER, DEPARTMENT OF WATER SUPPLY
COUNTY OF HAWAII

DIRECTOR, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
COUNTY OF HAWAII

DIRECTOR, PLANNING DEPARTMENT
COUNTY OF HAWAII

FOR GRADING PURPOSES ONLY;

DIRECTOR, DEPARTMENT OF PUBLIC WORKS
COUNTY OF HAWAII

1/26/16
DATE:

2/20/16
DATE:

DATE:

DATE:

DATE:

No.	DATE	DWG. CHK.	REVISIONS

This work was prepared by me or under my supervision and construction of this project is under my construction.
Exp. 04-30-16

[Signature]
Wesley R. Sogawa & Associates, Inc.



WRSA
Civil & Structural Engineers
Wesley R. Sogawa and Associates, Inc.
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Project Title: KEAUKAHA TRACT 1 IMPROVEMENTS
LOTS 58-B-1 AND 58-B-2
TITLE SHEET

Sheet Title: KEAUKAHA TRACT 1 IMPROVEMENTS
LOTS 58-B-1 AND 58-B-2
TITLE SHEET

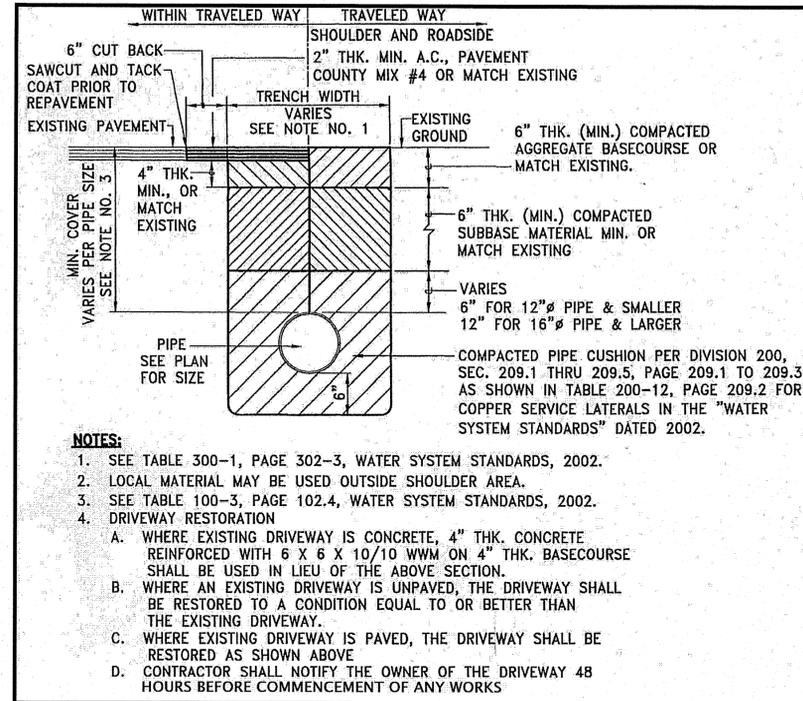
DESIGN BY: DRB
DRAWN BY: DRB
CHECKED BY: DL
APPROVED BY: DL
DATE: 2015
SCALE: AS NOTED
FILE No. W1302.44

DRAWING No.
T-1

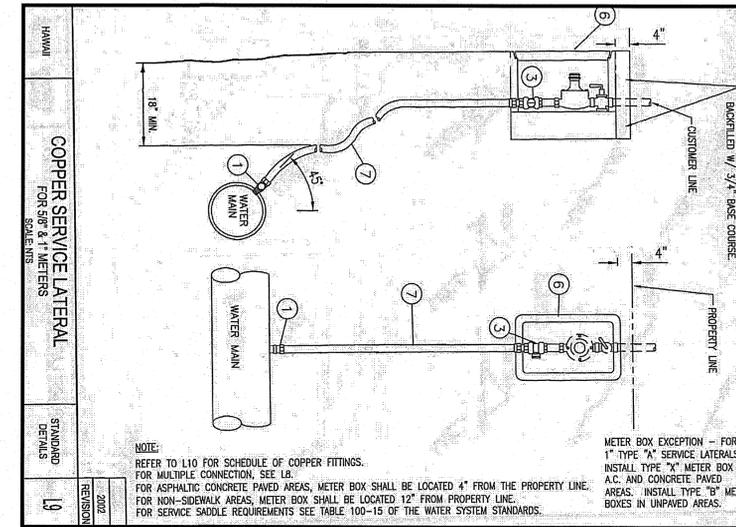
SHEET No.
1
OF 10 SHTS.

WATERLINE NOTES:

- ALL WORK SHALL BE DONE ACCORDING TO THE WATER SYSTEM STANDARDS, STATE OF HAWAII, DATED 2002, AS AMENDED.
- ALL EXISTING WATERLINES, WATERLINE, APPURTENANCES AND OTHER UTILITY LOCATIONS SHOWN ON THE PLANS ARE OBTAINED FROM THE LATEST RELIABLE SOURCES. THE CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY THE EXACT LOCATION OF ALL UTILITIES IN THE FIELD AND SHALL BEAR ALL COSTS FOR DAMAGE DONE DURING THE CONTRACT PERIOD.
- THE CONTRACTOR SHALL INFORM THE D.W.S. ENGINEER 72 HOURS PRIOR TO THE BEGINNING OF ANY WATERLINE WORK AND TWO WEEKS PRIOR TO ANY CONNECTION, CHLORINATION, SHUT-OFF OR RELOCATION WORK.
- ALL CONNECTIONS TO THE WATER SYSTEMS SHALL BE DONE BY THE D.W.S. THE CONTRACTOR SHALL PERFORM ALL EXCAVATION, BACKFILL, ROAD REPAIR, TRAFFIC CONTROL, AND PROVIDE EQUIPMENT AND MATERIALS NECESSARY TO COMPLETE THE CONNECTION.
- THE CONTRACTOR SHALL PAY FOR ALL WORK, EQUIPMENT, AND MATERIAL FURNISHED BY THE D.W.S.
- MINIMUM VERTICAL CLEARANCE BETWEEN WATERLINES AND OTHER UTILITIES SHALL BE 12-INCHES PROVIDED THE OTHER UTILITY IS CONCRETE JACKETED, AND 18-INCHES IF NO CONCRETE JACKETS ARE USED. IN ALL APPLICABLE INSTANCES, THE WATERLINES SHALL BE AT A GRADE HIGHER THAN OTHER UTILITIES. UTILIZE PERPENDICULAR CROSSINGS WHERE PRACTICABLE FOR WATERLINES, CENTER FULL PIPE LENGTHS AT UTILITY CROSSINGS WHENEVER POSSIBLE.
- MINIMUM HORIZONTAL CLEARANCE BETWEEN WATERLINES AND OTHER UTILITIES SHALL BE 8-FOOT (CLEAR SPACE - NOT CENTERLINE TO CENTERLINE) FOR ROAD RIGHT-OF-WAYS OF 50 FEET OR LESS, AND 10-FOOT FOR ROAD RIGHT-OF-WAYS OF MORE THAN 50 FEET.
- ALL WATER SYSTEM PIPELINES, 4-INCHES OR LARGER IN DIAMETER, SHALL BE DUCTILE IRON, PUSH ON JOINTS, CLASS 52, AND ALL PIPELINES SMALLER THAN 4-INCHES IN DIAMETER SHALL BE SOFT COPPER, TYPE "K", UNLESS OTHERWISE SPECIFIED.
- PIPE CUSHION FOR COPPER SERVICE LATERALS SHALL BE NO. 4 MANUFACTURED FINE SAND.
- METER BOXES FOR 5/8-INCH METERS PLACED OUTSIDE OF PAYMENT TO BE TYPE "B" PER STD DETAILS M1 & M2. METER BOXES FOR 1-INCH METERS OR FOR 5/8-INCH STD DETAIL M3.
- RELOCATION OF EXISTING METERS SHALL BE DONE UNDER D.W.S. SUPERVISION. RELOCATION OF CUSTOMER SERVICE LINES TO RELOCATED METERS SHALL BE COPPER (TYPE "K") AND DONE BY THE CONTRACTOR. ALL WORK AND MATERIALS SHALL BE PROVIDED BY THE CONTRACTOR AND CONSIDERED INCIDENTAL TO THE RELOCATION WORK. EXISTING METER BOXES DAMAGED BY THE CONTRACTOR SHALL BE REPAIRED AT THE CONTRACTOR'S COST. WHEN APPLICABLE, A DIELECTRIC UNION SHALL BE USED TO CONNECT THE COPPER PIPE TO THE CUSTOMER'S GALVANIZED IRON (G.I.) PIPE.
- SOLDER (1/8-INCH DIA.) AND FLUX USED SHALL NOT CONTAIN MORE THAN 0.2% LEAD
- LOTS REQUIRING A DEPARTMENT OF WATER SUPPLY APPROVED BACKFLOW PREVENTION ASSEMBLY SHALL HAVE ONE. IT MUST BE INSTALLED ON PRIVATE PROPERTY IN ACCORDANCE WITH D.W.S. STANDARD DETAIL NO. V9 AND DEPARTMENTAL STAFF MUST APPROVE THE INSTALLATION BEFORE WATER SERVICE CAN BE STARTED.
- WHERE WATER SHUT-OFF OF MORE THAN 3 HOURS BECOMES NECESSARY, THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL PROVIDE A TEMPORARY BY-PASS LINE. THE DWS ENGINEER SHALL DETERMINE THE BY-PASS LINE SIZE. IF NECESSARY, THE DWS ENGINEER MAY REQUIRE A BY-PASS LINE, REGARDLESS OF THE EXPECTED SHUT-OFF PERIOD.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR RECORD DRAWINGS (AS-BUILT DRAWINGS) AND THE LICENSED ENGINEER SHALL CERTIFY THE DRAWINGS AS TO ACCURACY AND SUBMIT THE DRAWINGS AND AS-BUILT TRACINGS TO THE DWS.
- AFTER JANUARY 4, 2014, ALL BRASS PRODUCTS MUST CONFORM TO NSF STANDARD 61 AND NSF STANDARD 372 OF THE SDWA, AND BE CERTIFIED AS "LEAD-FREE" BY THE MANUFACTURER. "LEAD-FREE" IS DEFINED AS THE ALLOWABLE LEAD CONTENT OF NOT MORE THAN 0.25% IN THE WETTED SURFACE. CERTIFICATION FROM THE MANUFACTURER MUST BE SUBMITTED TO THE DEPARTMENT OF WATER SUPPLY FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION. ANY BRASS PRODUCT INSTALLED WITHOUT APPROVAL MUST BE REMOVED AT NO EXPENSE TO THE DEPARTMENT.
- BOXED WATERLINE DETAILS BELOW TAKEN FROM THE WATER SYSTEM STANDARDS.



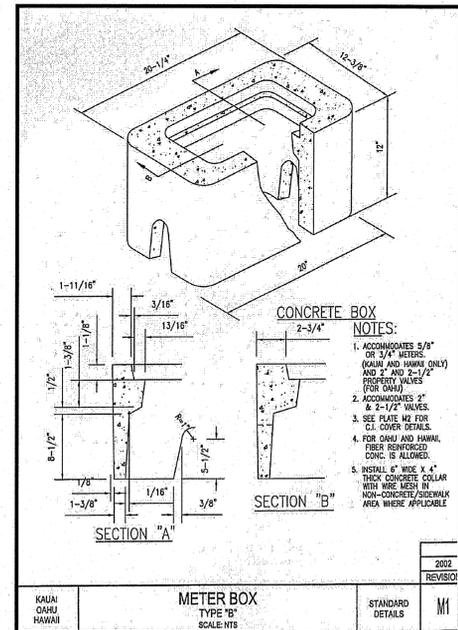
1 TYPICAL TRENCH AND PAVEMENT
C-2 REPAIR SECTION FOR WATERLINES
NOT TO SCALE



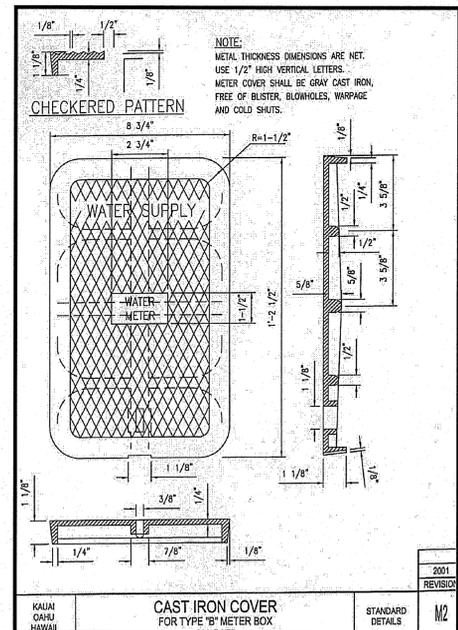
2 TYPICAL SINGLE SERVICE LATERAL
C-2 NOT TO SCALE

SERVICE LATERAL AND CONNECTION MATERIAL SCHEDULE											
SERVICE CONNECTION MATERIAL											
SERVICE LATERAL MATERIAL											
TYPE	SIZE	SIZE	QNT.								
A	1-1/2	1-1/2	1	1-1/2	1	1-1/2	1	1-1/2	1	1-1/2	1
B	1-1/2	1-1/2	1	1-1/2	1	1-1/2	1	1-1/2	1	1-1/2	1
C	1-1/2	1-1/2	1	1-1/2	1	1-1/2	1	1-1/2	1	1-1/2	1
D	1-1/2	1-1/2	1	1-1/2	1	1-1/2	1	1-1/2	1	1-1/2	1

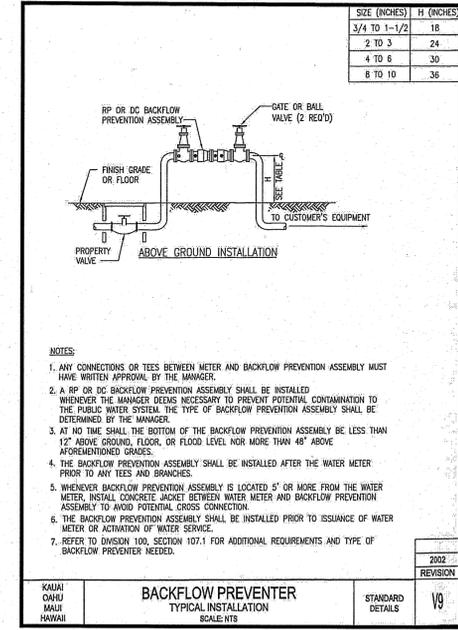
3 SCHEDULE OF COPPER FITTINGS
C-2 NOT TO SCALE



4 METER BOX TYPE "B"
C-2 NOT TO SCALE



5 CAST IRON COVER FOR
TYPE "B" METER BOX
C-2 NOT TO SCALE



6 BACKFLOW PREVENTER
C-2 NOT TO SCALE

Project Title: KEAUKAHA TRACT 1 IMPROVEMENTS LOTS 58-B-1 AND 58-B-2
Sheet Title: WATER NOTES & DETAILS

DESIGN BY: DRB
DRAWN BY: DRB
CHECKED BY: DL
APPROVED BY: DL
DATE: 2015
SCALE: AS NOTED
FILE No. W1302.44

DRAWING No. C-2
SHEET No. 3 OF 10 SHTS.

REVISIONS: 1. INSTALL BACKFLOW PREVENTER

DATE: 4/5/2016
DWG: 2, 4, 5, & 9

DATE: DATE

PRINTS TO

WRSIA
Walter R. Sogawa and Associates, Inc.
Civil & Structural Engineers
101 Silva Street, Suite 201 Hilo, Hawaii 96720-4755
Telephone: (808) 935-4677 Fax: (808) 935-2070

Walter R. Sogawa & Associates, Inc.
Walter R. Sogawa, P.E.
LICENSED PROFESSIONAL ENGINEER
No. 4004-C
HAWAII

WASTEWATER COLLECTION SYSTEM NOTES:

1. THE GENERAL REQUIREMENTS AND COVENANTS OF THE DEPARTMENT OF PUBLIC WORKS, COUNTY OF HAWAII (JULY 1972); THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (SEPTEMBER 1986), THE STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION, DEPARTMENT OF PUBLIC WORKS, COUNTY OF HAWAII, SEPTEMBER 1984 AND THE COUNTY OF HAWAII, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT, WASTEWATER DIVISION (WWD) STANDARD DETAILS (WW-1 THRU WW-9) SHALL BE APPLICABLE AND INCORPORATED HEREIN UNLESS OTHERWISE NOTED.
2. THE CONTRACTOR SHALL PROCURE ALL PERMITS AND LICENSES, PAY ALL CHARGES AND FEES AND GIVE ALL NOTICES NECESSARY AND INCIDENTAL TO THE DULY AND LAWFUL PROSECUTION OF THE WORK.
3. THE CONTRACTOR SHALL FURNISH LABOR, MATERIALS, AND EQUIPMENT REQUIRED FOR THE COMPLETE INSTALLATION OF THE SUBJECT WORK UNLESS SPECIFICALLY WRITTEN OTHERWISE.
4. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PERFORM A CONSTRUCTION PER THE APPROVED PLANS AND SPECIFICATIONS. ANY ADDITIONS, DELETIONS OR CHANGES TO THE WASTEWATER SYSTEM SHALL MEET THE APPROVAL OF THE COUNTY OF HAWAII, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT, WASTEWATER DIVISION.
5. INSPECTIONS SHALL BE REQUIRED FOR ALL WORK WHICH INVOLVES THE WWD'S SEWER MAINS, LATERALS, CLEANOUTS, AND ALL DETECTABLE NEW CONSTRUCTION. CALL THE WASTEWATER DIVISION AT 961-8338 AT LEAST TWO (2) WORKING DAYS IN ADVANCE TO SCHEDULE AN INSPECTION.
 - a. WHEN AND AS OFTEN AS THE WWD DETERMINES THROUGH THEIR INSPECTION PROCEDURES, MATERIAL, EQUIPMENT OR WORKMANSHIP DO NOT MEET THE REQUIREMENTS, THE WWD WILL GIVE WRITTEN NOTICE OF THE NONCOMPLIANCE TO THE CONTRACTOR AND IMMEDIATE CORRECTION OF THE DEFICIENCIES SHALL BE ADDRESSED WITH THE WWD ENGINEER AND/OR THEIR REPRESENTATIVE.
 - b. INSPECTION SHALL BE PERFORMED PRIOR TO BACKFILLING OR COVERING OF THE PIPE AND AFTER ALL PLUMBING WORK, IN ACCORDANCE WITH THE PLUMBING PERMIT, IS COMPLETE WITHIN THE PARCEL.
6. SEWER WORK SHALL BE SCHEDULED SUCH THAT WORK SHALL NOT BE PERFORMED ON SATURDAYS, SUNDAYS OR COUNTY OF HAWAII HOLIDAYS. IF SUCH WORK DICTATES PERFORMANCE ON THESE NON-WORKING DAYS AND AFTER NORMAL HOURS (3:30 PM TO 7:00 AM) OF OPERATION THEN, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PAYMENT OF OVERTIME CHARGES TO THE WWD.
7. ALL EXISTING WASTEWATER LINE(S), WHETHER OR NOT SHOWN ON THE PLANS, IF DAMAGED DURING CONSTRUCTION, SHALL BE REPAIRED BY THE CONTRACTOR AND THE CONTRACTOR SHALL PAY ALL EXPENSES.
8. BYPASSING OR SPILLING OF SEWAGE TO THE GROUND, DRAINAGE SYSTEM OR STATE WATERS IS PROHIBITED. THE CONTRACTOR SHALL PAY PENALTIES, INCLUDING LEGAL FEES AND OTHER COSTS RELATED TO THE BYPASS AND/OR SPILL.
9. THE CONTRACTOR SHALL BE OR HAVE IN PERSON ON THE JOB SITE OR BE REPRESENTED BY A RESPONSIBLE AGENT WITH AUTHORITY TO ACT FOR THE CONTRACTOR IN CONNECTION WITH THIS PROJECT AT ALL TIMES.
10. AT ALL TIMES DURING THE WORK, KEEP THE PREMISES CLEAN AND ORDERLY, AND UPON COMPLETION OF THE WORK, REPAIR ALL DAMAGE CAUSED BY EQUIPMENT AND LEAVE THE PROJECT FREE OF RUBBISH AND EXCESS MATERIALS OF ANY KIND.

SEWER SYSTEM REQUIREMENTS

1. SEWER MAIN PIPE AND FITTINGS:
 - a. ALL SEWER PIPE AND FITTINGS SHALL BE PVC SDR-26 BELL AND SPIGOT OR AN APPROVED EQUAL.
 - b. LAYING OF PIPE SHALL COMMENCE AT THE LOWEST POINT, THE BELL END FACING UPSTREAM. PIPE SHALL BE FITTED TOGETHER AND MATCHED SO THAT WHEN LAID IT WILL FORM A UNIFORM AND SMOOTH INVERT.
 - c. THE INTERIOR OF THE SEWER PIPE SHALL BE CLEARED OF ALL DEBRIS AND FOREIGN MATERIALS AS THE WORK PROGRESSES. EXPOSED ENDS OF SEWER PIPE SHALL BE CLOSED WITH TEMPORARY COVERS TO PREVENT EARTH AND DEBRIS FROM ENTERING THE PIPE BEFORE LEAVING THE WORKPLACE FOR THE NIGHT.
 - d. BECAUSE OF THE NATURE OF PLASTIC PIPE AND FITTINGS, THE CONTRACTOR IS CAUTIONED TO EXERCISE CARE IN HANDLING, LOADING, UNLOADING, AND STORING TO AVOID DAMAGE.
2. TRENCH, PIPE BEDDING, AND BACKFILL:
 - a. TRENCHES SHALL BE PROPERLY BACKFILLED AND COMPACTED AS SHOWN ON THE APPROVED PLAN.
 - b. PIPE BEDDING SHALL BE CLASS B *** AGGREGATE BASE COURSE PLACED WITHIN TRENCH NOT LESS THAN 6 INCHES BUT NOT MORE THAN 8 INCHES IN COMPACTED THICKNESS, SHOULD PROVIDE UNIFORM AND ADEQUATE LONGITUDINAL SUPPORT UNDER THE PIPE, AND SHALL BE COMPACTED TO 95 PERCENT MAXIMUM DRY DENSITY UNLESS OTHERWISE NOTED ON PLANS.
 - c. PIPE CUSHION SHALL BE CLASS B *** AGGREGATE BASE COURSE PROPERLY PLACED A MINIMUM OF 12" COMPACTED THICKNESS OVER THE TOP OF THE PIPE TO PROVIDE ADEQUATE SIDE SUPPORT WHILE AVOIDING VERTICAL AND LATERAL DISPLACEMENT.
 - d. CONTROLLED LOW-STRENGTH MATERIAL (CLSM) SHALL BE USED AS THE FINAL TRENCH BACKFILL UNLESS OTHERWISE NOTED ON THE PLAN OR APPROVED BY THE WWD ENGINEER.
 - e. COMPACTION TESTING FOR BASE COURSE MATERIAL SHALL BE PERFORMED BY AN INDEPENDENT TESTING AND QUALITY CONTROL LABORATORY. COMPACTION TESTING SHALL BE A MINIMUM OF ONE (1) TEST PER 150 LINEAL FEET OR A FRACTION THEREOF. THE ENGINEER RESERVES THE RIGHT TO INCREASE THE FREQUENCY OF COMPACTION TO MATCH FIELD CONDITIONS. TEST RESULTS SHALL BE SUBMITTED TO THE WWD ENGINEER FOR AS PART OF THE FINAL ACCEPTANCE.

3. SEWER LATERAL PIPE AND FITTINGS:

- a. NEW SEWER LATERALS AND CLEANOUT SHALL BE 6" DIAMETER, PVC SDR26 PIPE AND FITTINGS.
- b. SEWER CLEANOUTS SHALL BE LOCATED IN THE COUNTY RIGHT-OF-WAY WITHIN ONE FOOT OF THE PROPERTY LINE. THE CLEANOUT SHALL BE EASILY ACCESSIBLE (I.E. NOT BE BURIED OR LOCATED UNDER OR CLOSE TO ROCK WALLS, FENCES OR OTHER OBSTRUCTIONS).
- c. THE CLEANOUT SHALL BE PROVIDED A BRASS COUNTERSUNK CAP AND AN 18"X18"X18" CLASS B CONCRETE COLLAR REINFORCED WITH 1-#3 REINFORCEMENT STEEL LOOP. REFER WWD STANDARD DETAIL WW-2. IN THE EVENT THAT THE CLEANOUT IS INSTALLED WITHIN A SIDEWALK OR SIMILAR AREA HAVING CONCRETE SURFACES, THE CONCRETE COLLAR IS NOT REQUIRED.
- d. IF A CLEANOUT IS SUBJECT TO VEHICULAR OR ABNORMAL LOADING IT SHALL BE PROVIDED A TRAFFIC RATED FRAME/COVER (MODEL SBF 1246W, MANUFACTURED BY SOUTH BAY FOUNDRY OR APPROVED EQUAL) AND SHALL BE INSTALLED AS PER MANUFACTURER'S RECOMMENDATIONS. REFER WWD STANDARD DETAIL WW-4.
- e. SEWER LATERAL CONNECTIONS TO AN EXISTING SEWER MAIN MAY BE MADE WITH A WYE CONFIGURED FLEXIBLE SADDLE ROTATED 45 DEGREES ABOVE THE SEWER SPRING LINE. SEWER LATERAL SADDLE CONNECTIONS AND CORED SEWER MAIN ENTRY SHALL PROVIDE A SMOOTH AND UNOBSTRUCTED FLOW AREA. THE SEWER SADDLE SHALL COMPLETELY OVERLAY THE CORE ENTRY AREA ON THE MAIN SEWER PIPE. THE SADDLE SHALL BE SECURED TO THE MAIN SEWER PIPE WITH STAINLESS STEEL STRAPS AND JACKETED WITH CLASS 8 REINFORCED CONCRETE. THE REINFORCED JACKET SHALL COMPLETELY ENCASE THE EXISTING MAIN SEWER PIPE, BE A MINIMUM OF 6" THICK, AND EXTEND A MINIMUM OF 6" BEYOND THE SEWER SADDLE.

4. SEWER LINE ACCEPTANCE TEST:

- a. ALL NEWLY INSTALLED SEWER MAINS AND LATERALS ARE SUBJECT TO LEAKAGE AND CCTV INSPECTION PRIOR TO FINAL ACCEPTANCE AS DIRECTED BY THE WWD.
- b. LEAKAGE TESTING SHALL BE ACCOMPLISHED WITH SECTION 21.3 D OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, SEPTEMBER 1986. ALL COSTS FOR TESTING SHALL BE BORNE BY THE CONTRACTOR.
- c. AN INITIAL CCTV INSPECTION WILL BE PERFORMED BY THE COUNTY AT NO COST TO THE CONTRACTOR SUBJECT TO THE CONDITIONS BELOW.
 - i. THE CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN, FROM THE WWD, A COPY OF THE SEWER LINE ACCEPTANCE TEST CRITERIA PRIOR TO REQUESTING OR SCHEDULING A CCTV INSPECTION.
 - ii. THE CONTRACTOR SHALL ASSIST THE COUNTY IN THE PERFORMANCE OF THE CCTV INSPECTION, SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL REQUIREMENTS, AND SHALL BE RESPONSIBLE FOR CLEANING OF THE LINES TO REMOVE ALL DEBRIS PRIOR TO CCTV INSPECTION. IN THE EVENT THAT PIPES ARE FOUND TO HAVE BEEN INADEQUATELY CLEANED, THE COUNTY WILL TERMINATE THE INSPECTION AND ANY SUBSEQUENT INSPECTIONS WILL BE SUBJECT TO CHARGES TO THE CONTRACTOR.
 - iii. THE CONTRACTOR SHALL HAVE A SUPERVISORY REPRESENTATIVE PRESENT DURING PERFORMANCE OF THE CCTV INSPECTION.
 - iv. IF THE CCTV INSPECTION REVEALS CONDITIONS SUCH AS SAGS, DENTS, OUT-OF-ROUND, ETC. THEN, MANDREL TESTING IN ACCORDANCE WITH SECTION 21.3 E OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, SEPTEMBER 1986 WILL BE REQUIRED AT WHICH THE COST WILL BE BORNE BY THE CONTRACTOR.
 - v. CCTV INSPECTIONS WILL BE RECORDED IN VHS OR CDROM FORMAT. IN THE EVENT THAT THE CONTRACTOR REQUESTS A COPY OF THE CCTV INSPECTION, THE CONTRACTOR WILL BE CHARGED FOR THE COPY AT A RATE OF \$25.00.

5. FINAL PROJECT SUBMITTALS:

- a. UPON FINAL PROJECT ACCEPTANCE SUBMIT TO WWD ONE (1) SET OF "AS-BUILT" PLANS ON VELLUM AND TWO (2) COPIED SETS AND ONE (1) SET OF ELECTRONIC DRAWINGS IN AUTOCAD 2009 VERSION AND (1) SET OF ELECTRONIC DRAWINGS IN ADOBE PDF FORMAT.
- b. IT IS MANDATORY THAT THE "AS-BUILT" PLANS SHOW CORRECTLY IDENTIFIED PROPERTY TMK NUMBERS, LOCATION OF SEWER MANHOLES, LATERALS, CLEANOUTS AND ALL OTHER MAJOR COMPONENTS OF THE WASTEWATER COLLECTION SYSTEM INCLUDING INVERT ELEVATIONS AT ALL SEWER MANHOLES, LATERAL CONNECTIONS AT THE MAIN, LATERAL ELEVATIONS AT THE CLEANOUT. SUBMITTED DOCUMENTATION SHALL BE CERTIFIED BY A LICENSED PROFESSIONAL LAND SURVEYOR ATTESTING TO THE LOCATION AND ELEVATIONS OF ALL MAJOR COMPONENTS OF THE WASTEWATER COLLECTION SYSTEM AS SHOWN ON THE AS-BUILT PLANS.

DIVISION CHIEF, WASTEWATER DIVISION
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
COUNTY OF HAWAII

DATE

NO.	DATE	DESC.	CHK.

This work was prepared by me or under my direct supervision and I am a duly licensed professional engineer in the State of Hawaii. My license number is 4004-C. My expiration date is 04-30-16.

Wesley R. Segawa
Wesley R. Segawa & Associates, Inc.



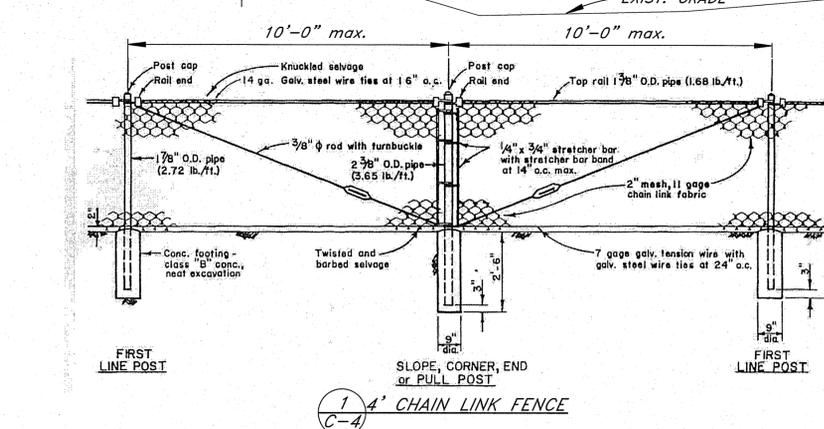
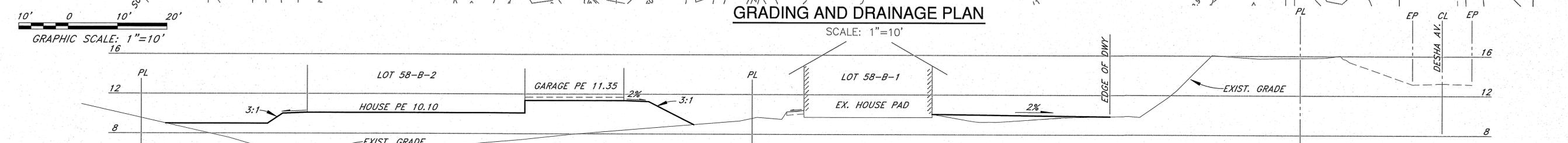
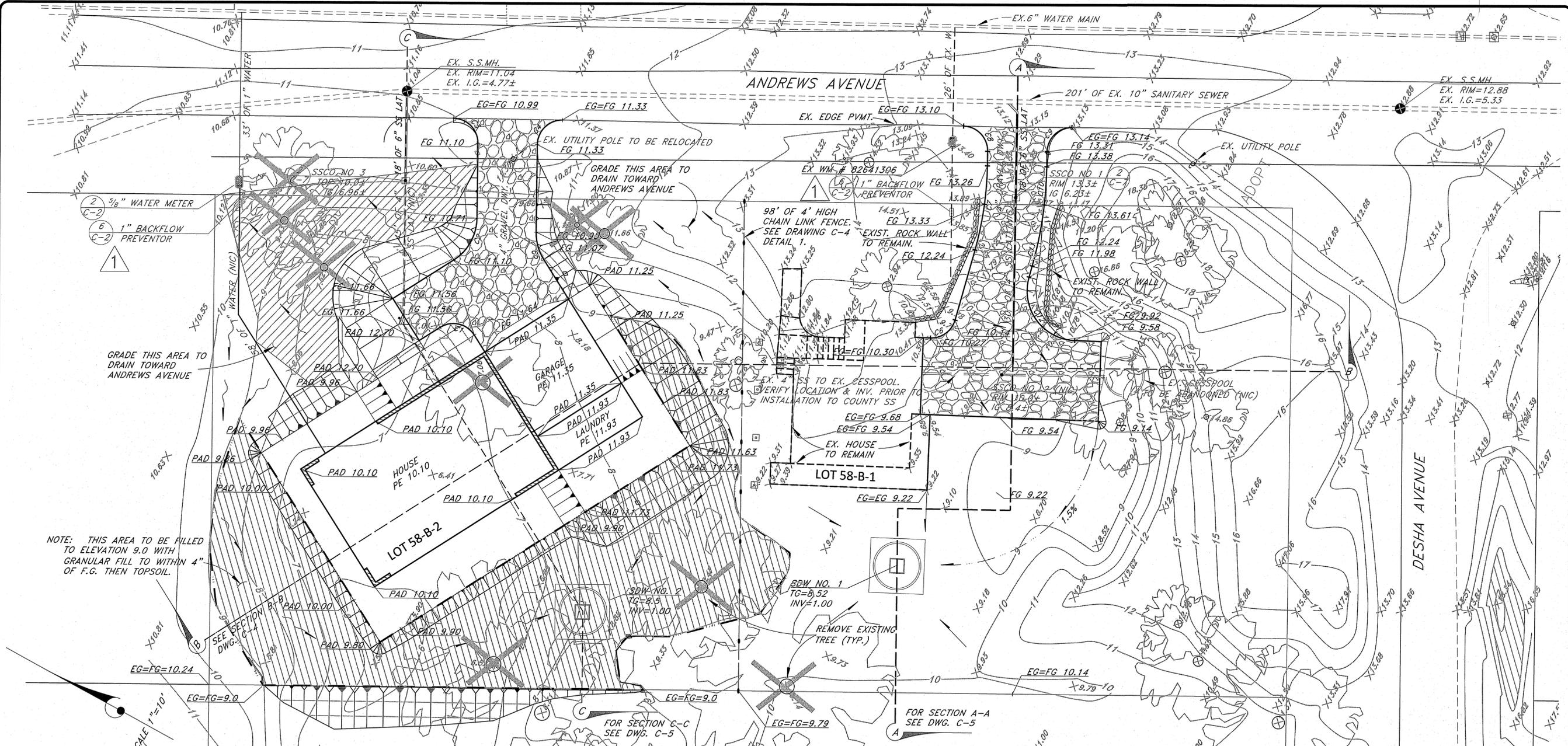
Project Title: KEAUKAHA TRACT 1 IMPROVEMENTS LOTS 58-B-1 AND 58-B-2 W.W.C. SYSTEM NOTES

Sheet Title:

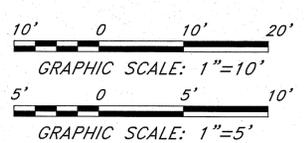
DESIGN BY: DRB
DRAWN BY: DRB
CHECKED BY: DL
APPROVED BY: DL
DATE: 2015
SCALE: AS NOTED
FILE No. W1302.44

DRAWING No. C-3

SHEET No. 4 OF 10 SHTS.



- NOTES:
1. Posts and braces shall be Schedule 40 (standard weight) pipe. Sizes specified are outside diameter.
 2. All fencing material shall be galvanized steel.
 3. Top rail couplings shall be located within 6" of line posts.
 4. Top of concrete footing shall be crowned to shed water.



Curve Table

Curve #	Length	Radius	Delta	Chord Direction	Chord Length
C1	7.85	5.00	90.00	N16° 02' 27"W	7.07
C2	9.96	10.00	57.06	S89° 34' 14"E	9.55
C3	7.84	5.00	89.87	N16° 57' 54"E	7.06
C4	7.87	5.00	90.13	N73° 02' 06"W	7.08
C5	5.75	10.00	32.94	S45° 25' 46"W	5.67
C6	6.65	5.00	76.23	S64° 43' 48"E	6.17

Curve Table

Curve #	Length	Radius	Delta	Chord Direction	Chord Length
C7	17.04	65.00	15.02	N69° 38' 43"E	16.99
C8	7.80	5.00	89.36	N17° 27' 27"E	7.03
C9	7.81	5.00	89.52	N73° 06' 10"W	7.04
C10	7.69	77.00	5.73	N64° 59' 59"E	7.69
C11	12.49	77.00	9.29	N72° 30' 28"E	12.47
C12	18.11	10.00	103.77	S25° 16' 12"W	15.74

NO.	DATE	DWG.	CHK.	REVISIONS
1	4/5/2016	2, 4, 5, & 9	PL	INSTALL BACKFLOW PREVENTER
2				
3				
4				
5				
6				
7				
8				
9				
10				

This work was prepared by me or under my supervision and construction of this project will be under my observation.
Exp. 04-30-16

Wendy R. Sogawa & Associates, Inc.
Wendy R. Sogawa, P.E., License No. 4004-C
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Telephone: (808) 935-4577 Fax: (808) 935-2070

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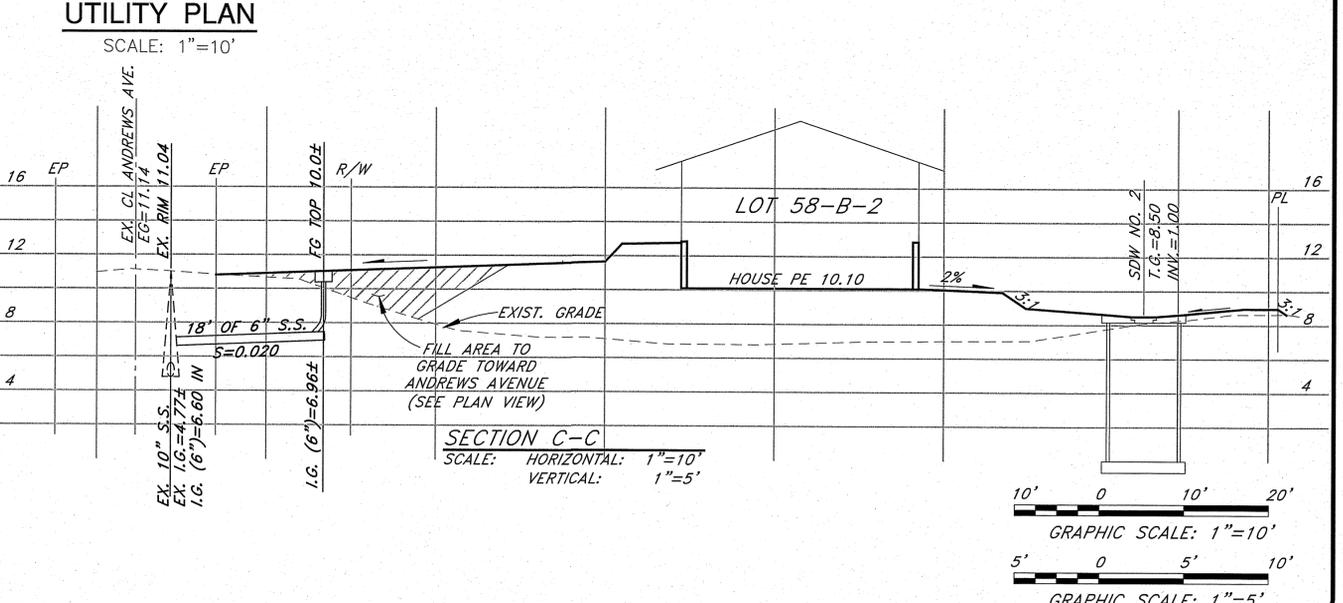
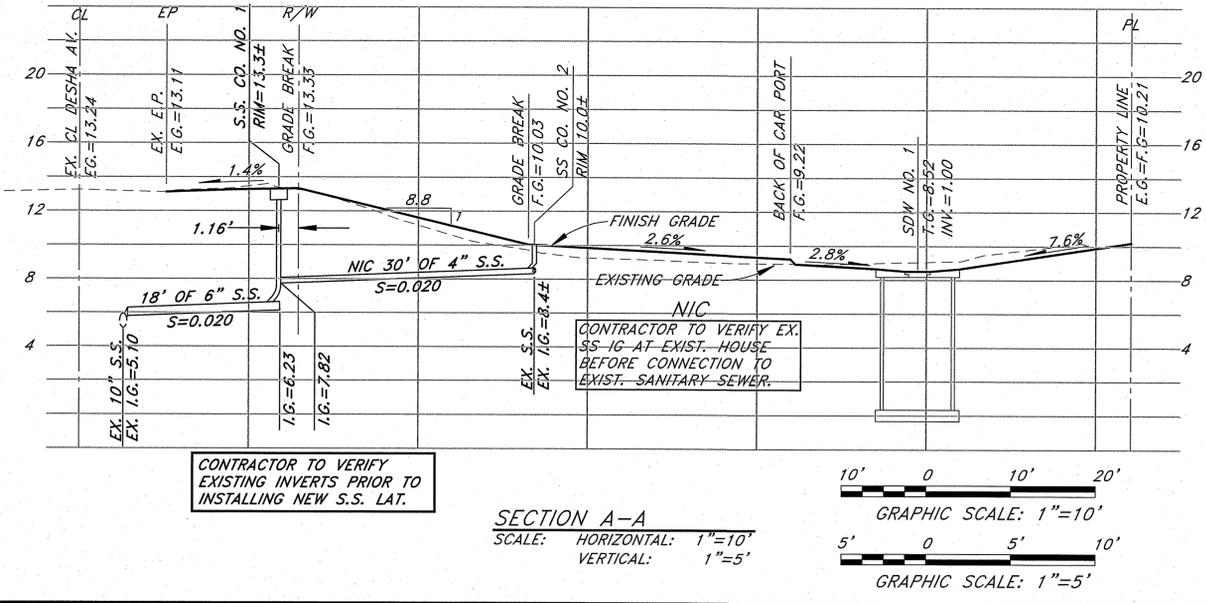
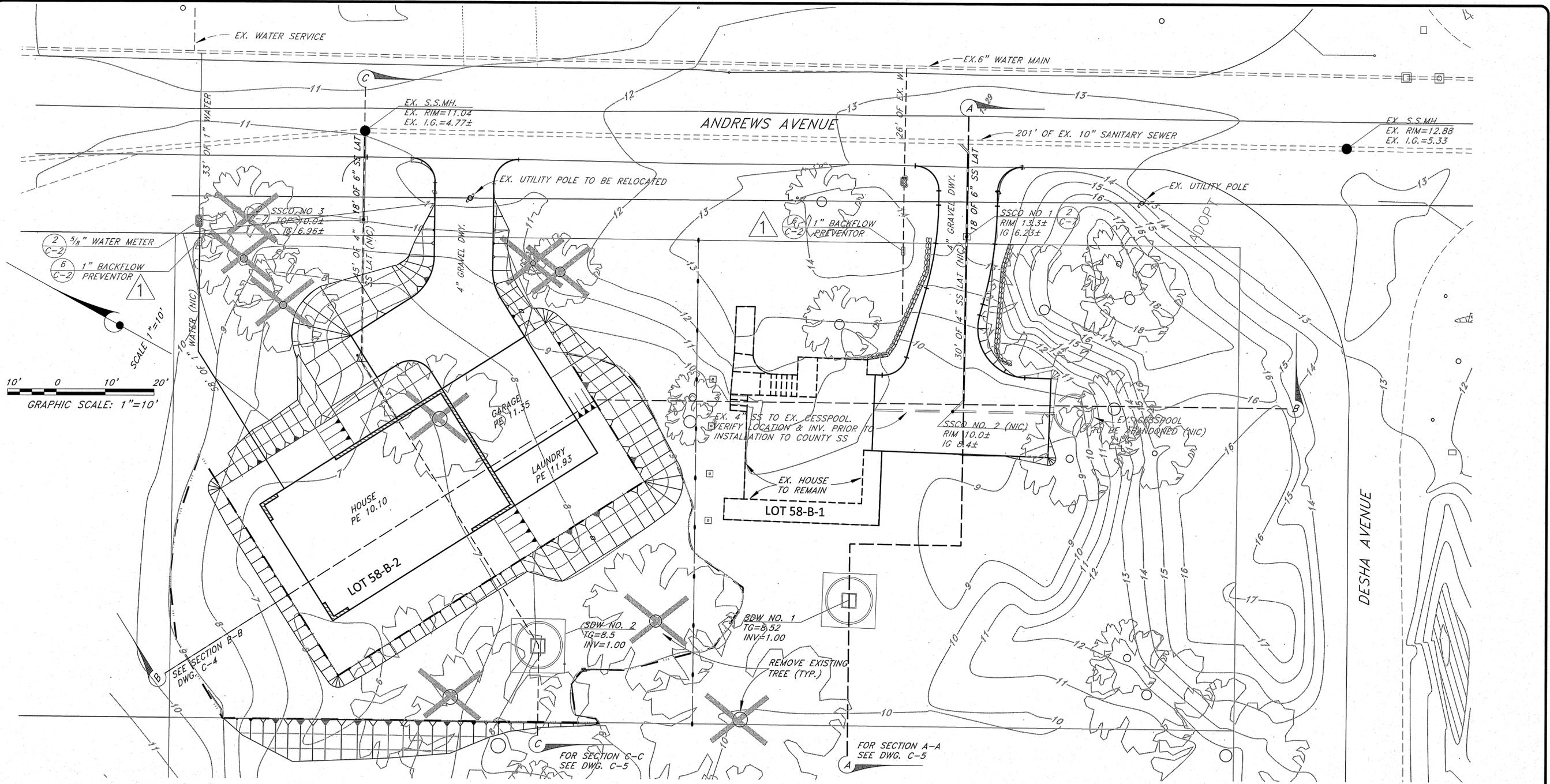
Project Title: **KEAUKAHA TRACT 1 IMPROVEMENTS LOTS 58-B-1 AND 58-B-2 GRADING AND DRAINAGE PLAN**

Sheet Title: **GRADING AND DRAINAGE PLAN**

DESIGN BY: DRB
DRAWN BY: DRB
CHECKED BY: DL
APPROVED BY: DL
DATE: 2015
SCALE: AS NOTED
FILE No. W1302.44

DRAWING No. **C-4**

SHEET No. **5**
OF **10** SHTS.



NO.	DATE	DESC.	CHKD.	REVISIONS
1	4/5/2016	2, 4, 5, & 9	DL	INSTALL BACKFLOW PREVENTER

This work was prepared by me or under my direct supervision and I am a duly licensed professional engineer in the State of Hawaii. My license number is 4094-C.

Wesley F. Segawa & Associates, Inc.
Wesley F. Segawa, P.E.

Professional Engineer License No. 4094-C
State of Hawaii

WRSA
Wesley F. Segawa and Associates, Inc.
Civil & Structural Engineers
committed to Quality Performance & Value

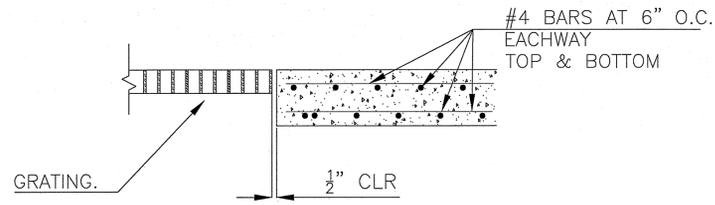
101 Silve Street, Suite 201 Hilo, Hawaii 96720-4755
Telephone: (808) 935-4677 Fax: (808) 935-2070

Project Title: KEAUKAHA TRACT 1 IMPROVEMENTS LOTS 58-B-1 AND 58-B-2

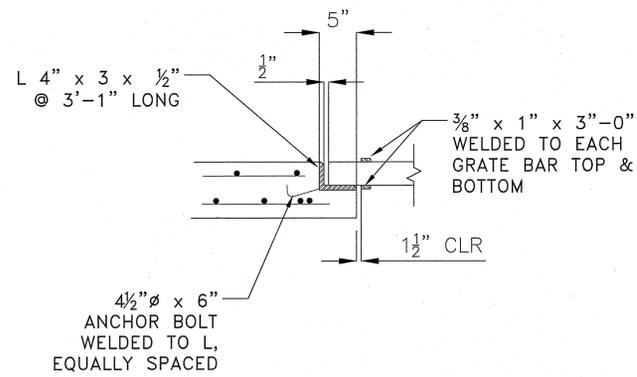
Sheet Title: UTILITY PLAN

DESIGN BY: DRB
DRAWN BY: DRB
CHECKED BY: DL
APPROVED BY: DL
DATE: 2015
SCALE: AS NOTED
FILE No. W1302.44

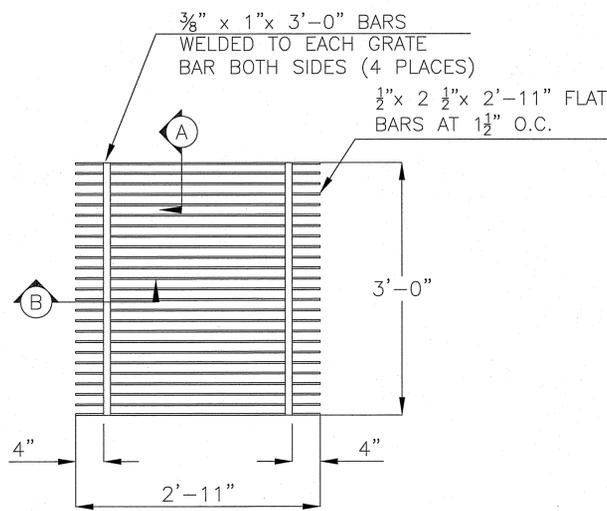
DRAWING No. **C-5**
SHEET No. **6**
OF 10 SHTS.



SECTION A-A
NOT TO SCALE

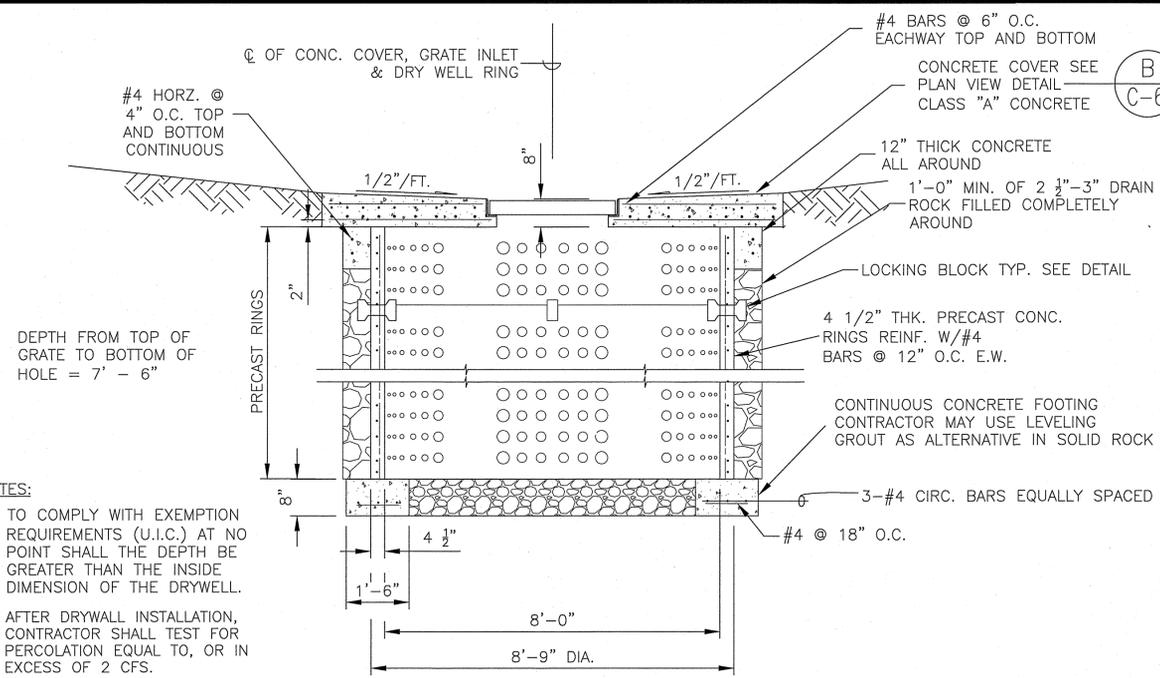


SECTION B-B
NOT TO SCALE



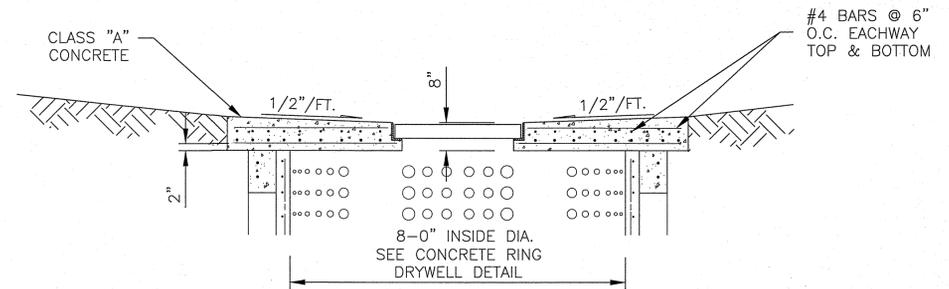
GRATING
NOT TO SCALE

A DRYWELL GRATE DETAIL
C-6 NOT TO SCALE

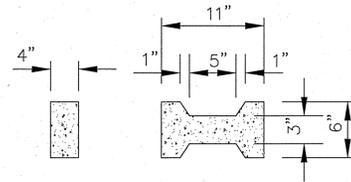


CONCRETE RING DRYWELL
NOT TO SCALE

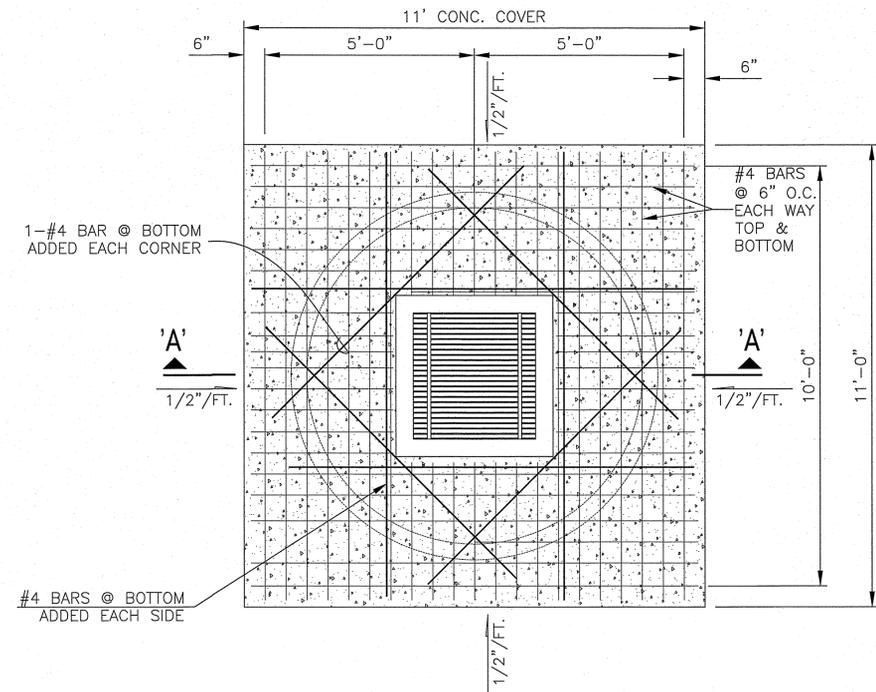
- NOTES:
1. TO COMPLY WITH EXEMPTION REQUIREMENTS (U.I.C.) AT NO POINT SHALL THE DEPTH BE GREATER THAN THE INSIDE DIMENSION OF THE DRYWELL.
 2. AFTER DRYWELL INSTALLATION, CONTRACTOR SHALL TEST FOR PERCOLATION EQUAL TO, OR IN EXCESS OF 2 CFS.



SECTION A-A
NOT TO SCALE



TYPICAL RING CROSS SECTION
NOT TO SCALE



PLAN
NOT TO SCALE

B CONCRETE DRYWELL DETAIL
C-6 NOT TO SCALE

NO.	DATE	BY	CHK.	REVISIONS

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Wesley F. Segawa & Associates, Inc.
Wesley F. Segawa, P.E.

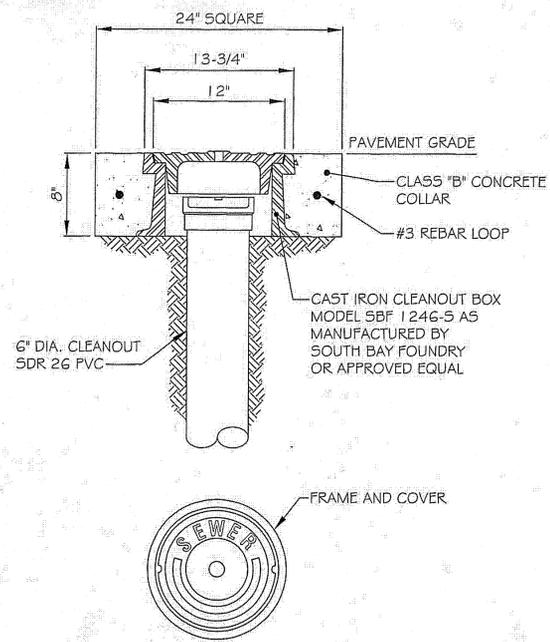


WRSA
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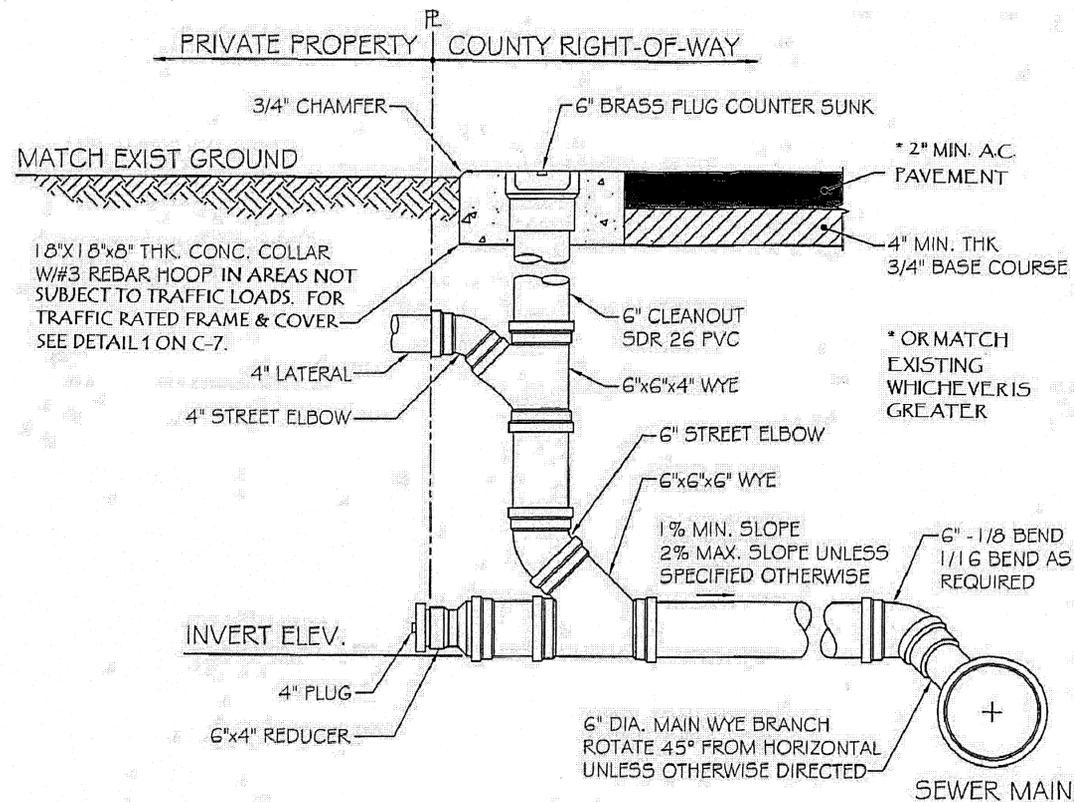
Project Title: KEAUKAHA TRACT 1 IMPROVEMENTS LOTS 58-B-1 AND 58-B-2
Sheet Title: SHALLOW DRYWELL DETAILS

DESIGN BY: DRB
DRAWN BY: DRB
CHECKED BY: DL
APPROVED BY: DL
DATE: 2015
SCALE: AS NOTED
FILE No. W1302.44

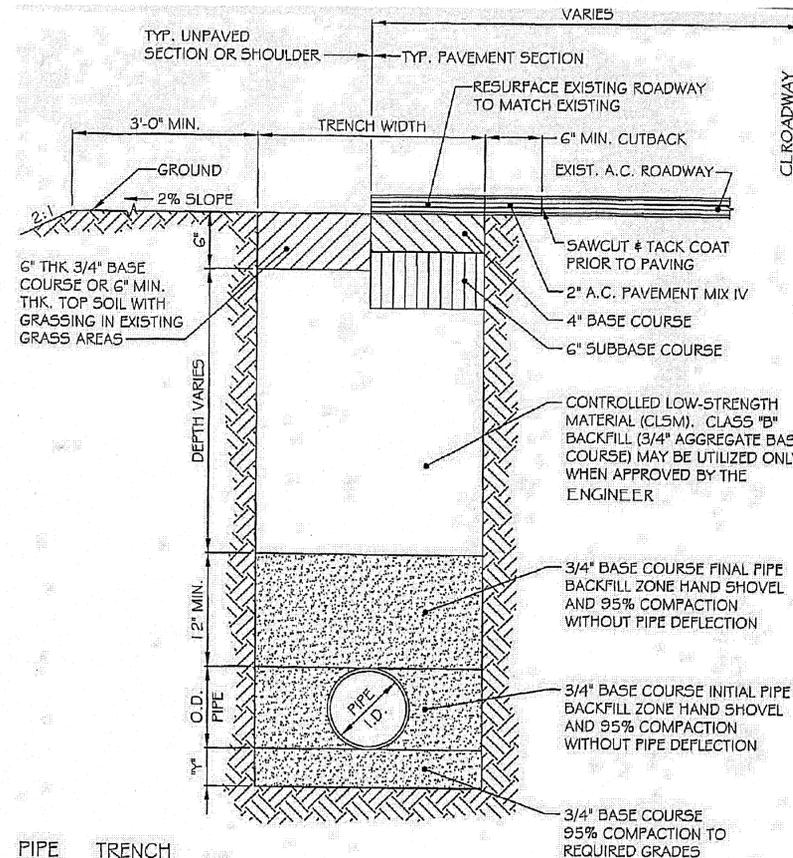
DRAWING No. **C-6**
SHEET No. 7
OF 10 SHTS.



1 TYPICAL TRAFFIC RATED FRAME & COVER
 C-7 (COUNTY OF HAWAII, ENVIRONMENTAL MANAGEMENT, WASTEWATER DIVISION) NOT TO SCALE



2 TYPICAL LATERAL & CLEANOUT DETAIL
 C-7 (COUNTY OF HAWAII, ENVIRONMENTAL MANAGEMENT, WASTEWATER DIVISION) NOT TO SCALE



PIPE SIZE	TRENCH WIDTH	DEPTH
6"	24"	4"
8"	24"	4"
10"	24"	4"
12"	30"	5"

NOTE: TRENCH RESTORATION WITHIN STATE RIGHT-OF-WAYS SHALL CONFORM TO THE REQUIREMENTS OF THE STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION.

3 TYPICAL TRENCH DETAIL
 C-7 COUNTY ROADS
 (COUNTY OF HAWAII, ENVIRONMENTAL MANAGEMENT, WASTEWATER DIVISION) NOT TO SCALE

DIVISION CHIEF, WASTEWATER DIVISION
 DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 COUNTY OF HAWAII

REVISIONS

NO.	DATE	BY	CHK

PRINTS TO

This work was prepared by me or under my direct supervision and I am a duly Licensed Professional Engineer. Exp. 04-30-16

Wesley R. Shogawa & Associates, Inc.

Wesley R. Shogawa, P.E.

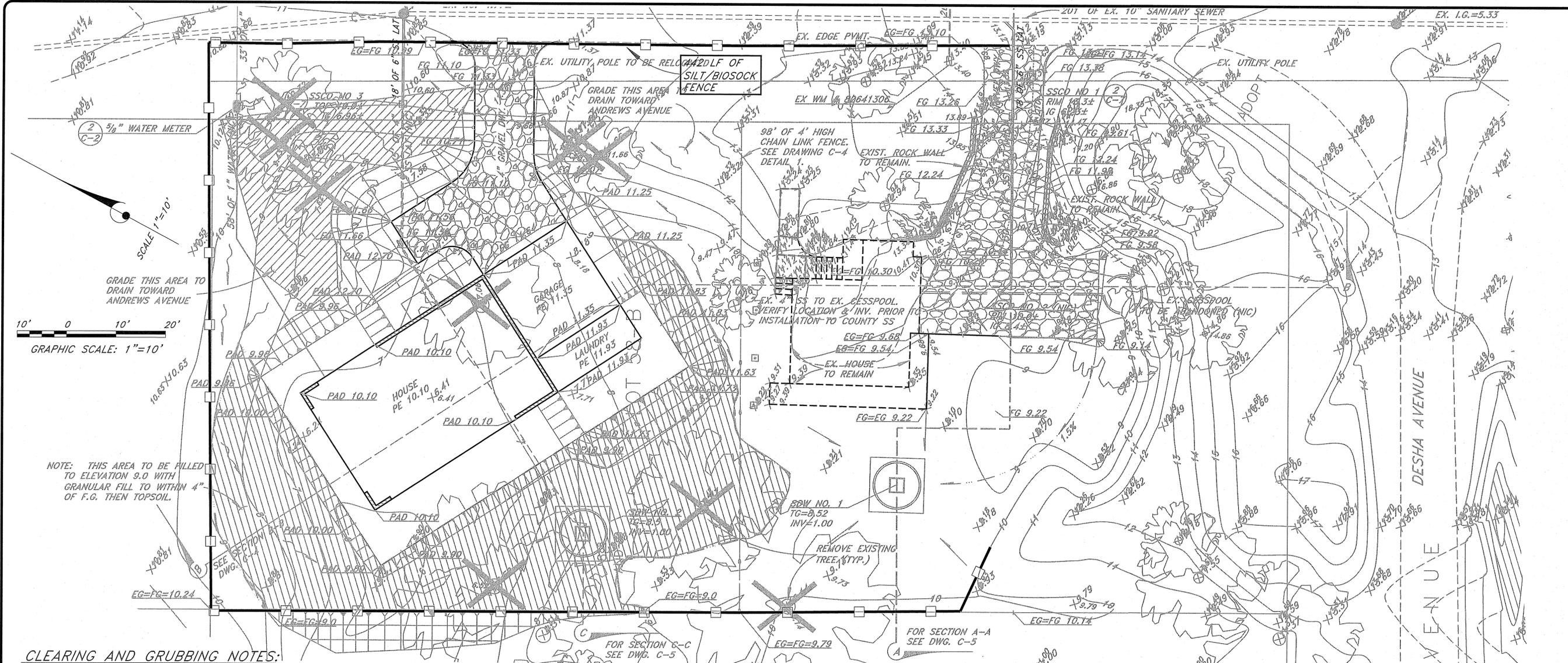
Wesley R. Shogawa & Associates, Inc.

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Project Title: KEAUKAHA TRACT 1 IMPROVEMENTS LOTS 58-B-1 AND 58-B-2
 Sheet Title: SANITARY SEWER DETAILS

DESIGN BY: DRB
 DRAWN BY: DRB
 CHECKED BY: DL
 APPROVED BY: DL
 DATE: 2015
 SCALE: AS NOTED
 FILE No. W1302.44

DRAWING No. C-7
 SHEET No. 8
 OF 10 SHTS.



CLEARING AND GRUBBING NOTES:

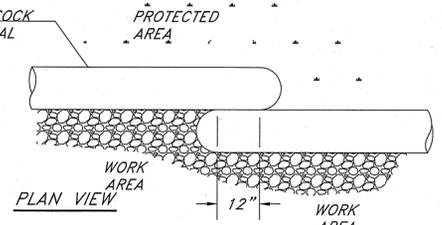
- CLEAR ALL SURFACE AREAS AND GRUB AREAS BELOW NATURAL GROUND SURFACES FOR THE DESIGNATED LOTS. ENSURE THAT ALL BMP MEASURES ARE IN PLACE BEFORE CLEARING AND GRUBBING STARTS.
- CLEARING IS DEFINED AS REMOVING AND DISPOSING OF ALL UNWANTED SURFACE MATERIALS, SUCH AS TREES, BRUSH, GRASS, WEEDS, DOWNED TREES, AND OTHER MATERIAL.
- GRUBBING IS DEFINED AS REMOVING AND DISPOSING OF ALL UNWANTED VEGETATION MATTER FROM UNDERGROUND, SUCH AS STUMPS, ROOTS, BURIED LOGS, AND OTHER MATERIAL.
- DEBRIS IS DEFINED AS USABLE OR UNWANTED MATERIAL PRODUCED BY CLEARING AND GRUBBING.
- CLEARING AND GRUBBING ALSO INCLUDES HERBICIDE MAINTENANCE. HERBICIDE MAINTENANCE INCLUDES APPLICATION OF WEED CONTROLLING CHEMICALS, APPLIED ONCE PER MONTH FREQUENCIES FOR ONE YEAR (12 MONTHS) DURATION. THE SELECTED HERBICIDE IS ROUND UP (GLYPHOSATE) OR AN EQUAL HERBICIDE CHEMICAL, TO BE APPROVED BY DHHL. THE HERBICIDE DOSAGE USED IN ALL APPLICATIONS SHALL BE FOR DESTROYING BROADLEAF WEEDS.
- LIMITS - CLEARING AND GRUBBING WORK IS INTENDED TO BE WITHIN THE HOUSE LOT PARCEL. ANY WORK OUTSIDE OF THE HOUSE LOT PARCEL REQUIRES PRIOR APPROVAL BY DHHL AND THE AFFECTED ADJACENT LEASE HOLDER.
- REMOVAL AND DISPOSAL OF MATERIAL - REMOVE MATERIAL AND DEBRIS, AND DISPOSE OF AT AN AUTHORIZED DISPOSAL SITE. OBTAIN WRITTEN AUTHORIZATION FROM PROPERTY OWNERS AND GOVERNMENT AUTHORITIES FOR DISPOSAL LOCATIONS OUTSIDE ROAD-RIGHT-OF-WAY LIMITS. LEAVE AREAS WITH NEAT AND FINISHED APPEARANCE.

LEGEND:

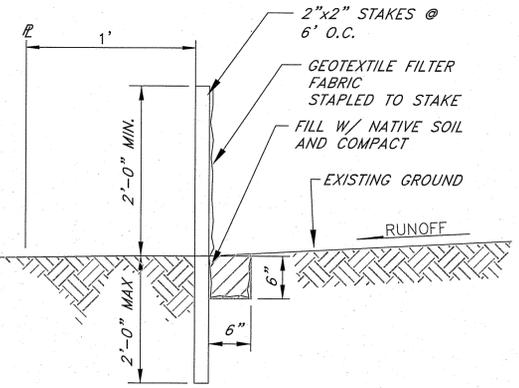
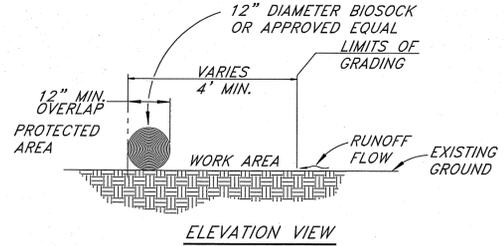


EROSION CONTROL NOTES:

- THE CONTRACTOR SHALL REFER TO THE RULES RELATING TO SOILS EROSION STANDARDS AND GUIDELINES, APRIL 1999, BY THE CITY AND COUNTY OF HONOLULU DEPARTMENT OF PLANNING AND PERMITTING FOR BEST MANAGEMENT PRACTICES.
- THE CONTRACTOR SHALL STABILIZE THE CONSTRUCTION SITE AT ALL POINTS OF EGRESS AND INGRESS WITH A 12' WIDE X 20' LONG X 8" DEEP SECTION OF NO. 2 CRUSHED ROCK.
- STOCKPILES SHALL NOT BE LOCATED IN DRAINAGE WAYS OR OTHER AREAS OF CONCENTRATED FLOWS. SEDIMENT TRAPPING DEVICES SUCH AS FENCES, TRAPS, BASINS OR BARRIERS SHALL BE USED AROUND THE BASE OF ALL STOCKPILES.
- DUST CONTROL SHOULD BE APPLIED TO REDUCE DUST EMISSIONS. THE CONTRACTOR, AT THEIR OWN EXPENSE, SHALL KEEP THE PROJECT AREA AND SURROUNDING AREA FREE FROM DUST NUISANCE. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL STANDARDS CONTAINED IN HAWAII ADMINISTRATIVE RULES: CHAPTER 11-60, "AIR POLLUTION CONTROL".
- SURFACE FLOW FROM ABOVE AN EXPOSED SLOPE SHALL NOT BE ALLOWED TO FLOW OVER THE SLOPE WITHOUT PROTECTION. SLOPE PROTECTION SHALL BE USED ON AREAS WITH SLOPES GREATER THAN 50% AND ON AREAS OF MODERATE SLOPES THAT ARE PRIME TO EROSION.
- ALL STORM DRAIN INLETS ON SITE, AND THOSE OFFSITE WHICH MAY RECEIVE RUNOFF FROM THE SITE SHALL USE AN INLET PROTECTION DEVICE.
- TEMPORARY STABILIZATION IS NOT REQUIRED WHEN THE DISTURBED AREA WILL BE WORKED WITHIN A 14 DAY PERIOD. STABILIZATION IS REQUIRED FOR DISTURBED AREAS AT FINAL GRADE AND FOR THOSE AREAS THAT WILL NOT BE WORKED WITHIN A 14 DAY PERIOD.
- ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED PRIOR TO REMOVING EROSION AND SEDIMENT MEASURES. ALL TEMPORARY EROSION AND SEDIMENT MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED. TRAPPED SEDIMENT AND AREAS OF DISTURBED SOIL WHICH RESULT FROM THE REMOVAL OF THE TEMPORARY MEASURES SHALL BE IMMEDIATELY PERMANENTLY STABILIZED.



BIO SOCK DETAIL (12" DIA)
NOT TO SCALE



SILT FENCE NOTES:
BIO SOCK MAY BE USED IN LIEU OF SILT FENCE.
THE CONTRACTOR SHALL INSTALL SILT FENCES OR BIO-SOCK PRIOR TO CONSTRUCTION.
ALL BEST MANAGEMENT PRACTICES (BMP'S) SHALL NOT BE REMOVED UNTIL ALL PERMANENT EROSION CONTROL MEASURES ARE IN PLACE AND ESTABLISHED.
AT THE END OF GRADING OPERATIONS, EXISTING CB'S AND DMH'S SURROUNDING THE PROJECT SITE SHALL BE INSPECTED AND ANY ACCUMULATED SEDIMENT AND DEBRIS FOUND IN THE DRAIN STRUCTURES SHALL BE REMOVED. FLUSHING INTO THE CB'S AND DMH'S ARE PROHIBITED.

SILT FENCE DETAIL
NO SCALE

NO.	DATE	DESC.	CHK.	REVISIONS

This work was prepared by me or under my direct supervision and I am a duly Licensed Professional Engineer. Exp. 04-30-16

10/10/15 E. Al. Liu
Wesley R. Segawa & Associates, Inc.

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101 Silva Street, Suite 201 Hilo, Hawaii 96720-4755
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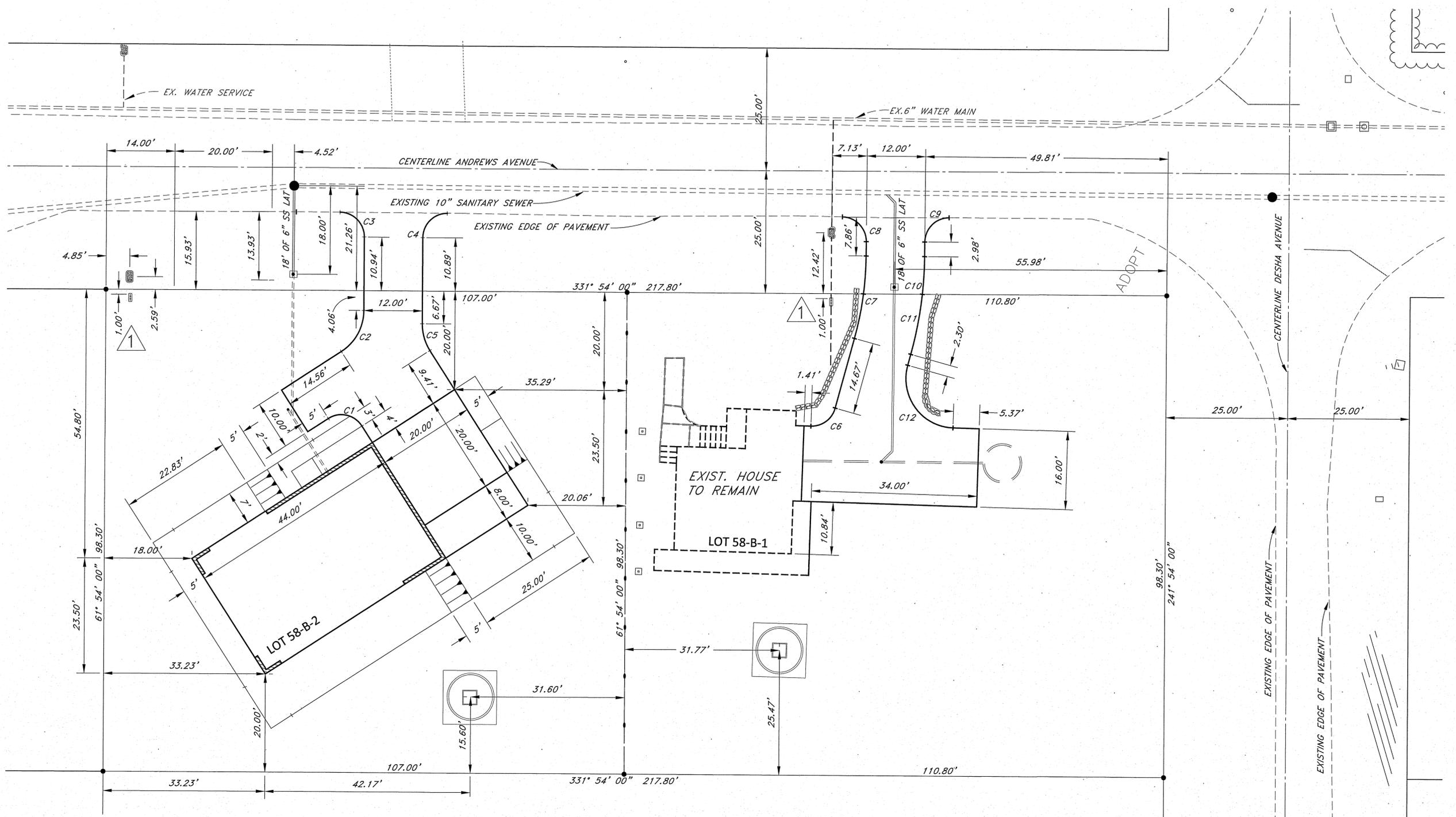
Project Title: **KEAUKAHA TRACT 1 IMPROVEMENTS LOTS 58-B-1 AND 58-B-2 EROSION CONTROL (BMP) PLAN**

Sheet Title: **EROSION CONTROL (BMP) PLAN**

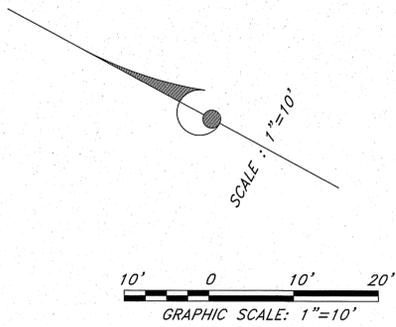
DESIGN BY: DRB
DRAWN BY: DRB
CHECKED BY: DL
APPROVED BY: DL
DATE: 2015
SCALE: AS NOTED
FILE No. W1302.44

DRAWING No. **C-8**

SHEET No. **9**
OF **10** SHTS.



DIMENSION PLAN



Curve Table					
Curve #	Length	Radius	Delta	Chord Direction	Chord Length
C1	7.85	5.00	90.00	N16° 02' 27"W	7.07
C2	9.96	10.00	57.06	S89° 34' 14"E	9.55
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NO.	DATE	DWG.	CHK.	REVISIONS
1	4/5/2016	2, 4, 5, & 9	DL	INSTALL BACKFLOW PREVENTER
2				
3				
4				
5				

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Exp. 04-30-16

Walter R. Sagarua & Associates, Inc.
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GENIUS K.W. LEE
LICENSED PROFESSIONAL ENGINEER
No. 4004-C
HAWAII

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Project Title: KEAUKAHA TRACT 1 IMPROVEMENTS LOTS 58-B-1 AND 58-B-2
Sheet Title: DIMENSION PLAN

DESIGN BY: DRB
DRAWN BY: DRB
CHECKED BY: DL
APPROVED BY: DL
DATE: 2015
SCALE: AS NOTED
FILE No. W1302.44

DRAWING No. **C-9**

SHEET No. 10 OF 10 SHTS.

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS

KEAUKAHA TRACT 1 IMPROVEMENTS

LOT 59-B-1 and LOT 59-B-2

WAIAKEA, SOUTH HILO, HAWAII
TAX MAP KEY: (3) 2 - 1 - 021: 029
IFB-16-HHL-014

SUBDIVISION APPLICATION NO: SUB-15-001464

No.	DATE	DWG. CHK.	REVISIONS

This work was prepared by me or under my supervision and I am a duly Licensed Professional Engineer. Exp. 04-30-16

Wesley F. Segawa
Wesley F. Segawa & Associates, Inc.

Professional Engineer License No. 4094-C
DENNIS K. W. LEE
LICENSED PROFESSIONAL ENGINEER
No. 4094-C
HAWAII

WRSA
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committed to quality performance & value

Civil & Structural Engineers
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Telephone: (808) 935-4677 Fax: (808) 935-2070

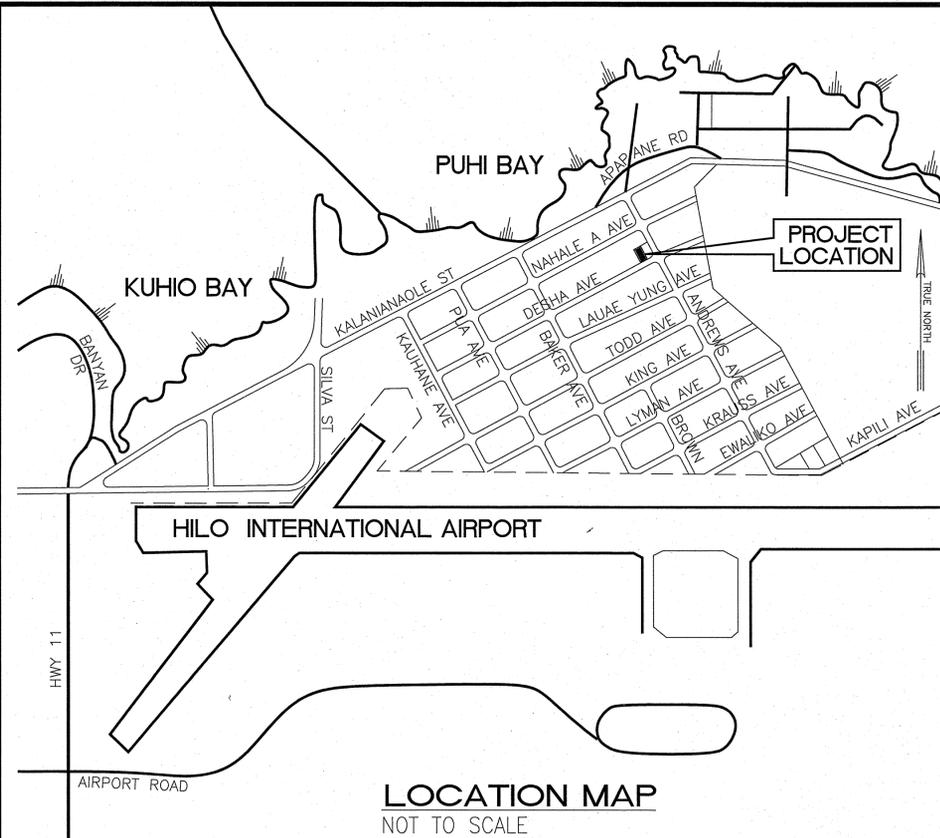
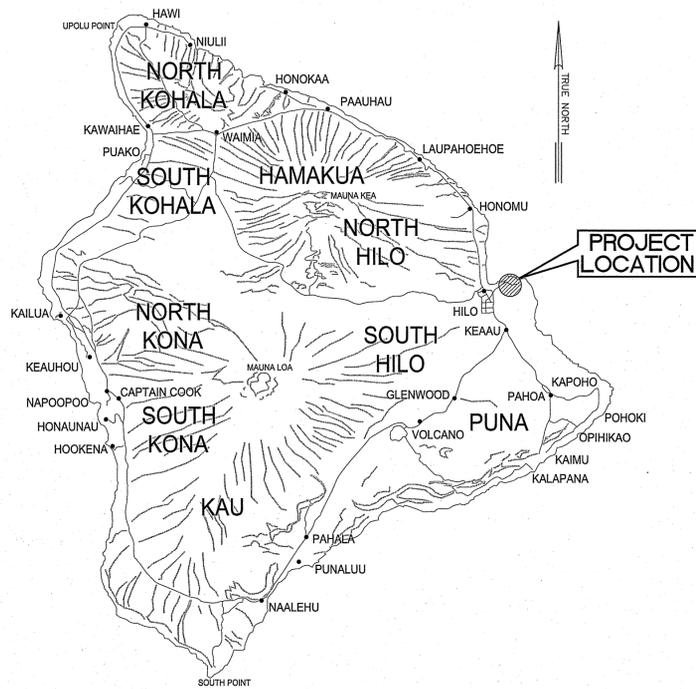
Project Title: KEAUKAHA TRACT 1 IMPROVEMENTS
LOTS 59-B-1 AND 59-B-2
TITLE SHEET

Sheet Title: KEAUKAHA TRACT 1 IMPROVEMENTS
LOTS 59-B-1 AND 59-B-2
TITLE SHEET

DESIGN BY: DRB
DRAWN BY: DRB
CHECKED BY: DL
APPROVED BY: DL
DATE: X
SCALE: AS NOTED
FILE No. W1302.44

DRAWING No. **T-1**

SHEET No. **1**
OF **9** SHTS.



I N D E X

SHEET NO.	DESCRIPTION	DRAWING NO.
1	TITLE SHEET	T-1
2	MISCELLANEOUS NOTES	C-1
3	UTILITY POLE NOTES AND SPECIFICATIONS	C-2
4	WATER NOTES & DETAILS	C-3
5	GRADING AND DRAINAGE PLAN	C-4
6	UTILITY PLAN	C-5
7	SHALLOW DRYWELL DETAILS	C-6
8	EROSION CONTROL (BMP) PLAN	C-7
9	DIMENSION PLAN	C-8

APPROVED BY:

Wesley F. Segawa
CHAIRMAN, HAWAIIAN HOMES COMMISSION
STATE OF HAWAII

6/26/16
DATE:

Wesley F. Segawa
MANAGER, CHIEF-ENGINEER, DEPARTMENT OF WATER SUPPLY
COUNTY OF HAWAII

3/20/16
DATE:

DIRECTOR, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
COUNTY OF HAWAII

DATE:

DIRECTOR, PLANNING DEPARTMENT
COUNTY OF HAWAII

DATE:

FOR GRADING PURPOSES ONLY;

DIRECTOR, DEPARTMENT OF PUBLIC WORKS
COUNTY OF HAWAII

DATE:

GRADING NOTES:

- ALL GRADING WORK SHALL CONFORM TO CHAPTER 10 OF THE HAWAII COUNTY CODE. SHOULD A GRADING PERMIT BE REQUIRED, NO WORK SHALL COMMENCE UNTIL THE DEPARTMENT OF PUBLIC WORKS (DPW) APPROVES A GRADING PERMIT.
- THE CONTRACTOR SHALL REMOVE ALL SILT AND DEBRIS DEPOSITED IN DRAINAGE FACILITIES, ROADWAYS AND OTHER AREAS RESULTING FROM HIS WORK. THE COSTS INCURRED FOR ANY NECESSARY REMEDIAL ACTION BY THE DPW, SHALL BE PAYABLE BY THE CONTRACTOR.
- THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL KEEP THE PROJECT AND SURROUNDING AREAS FREE FROM DUST NUISANCES. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL RULES OF THE STATE DEPARTMENT OF HEALTH, HAR 11-80.1, and FUGITIVE DUST.
- ALL GRADING OPERATIONS SHALL BE PERFORMED IN CONFORMANCE WITH THE APPLICABLE PROVISIONS OF THE HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 55, WATER POLLUTION CONTROL AND CHAPTER 54, WATER QUALITY STANDARDS, AND TO THE EROSION AND SEDIMENTATION CONTROL STANDARDS AND GUIDELINES OF THE DEPARTMENT OF PUBLIC WORKS, COUNTY OF HAWAII.
- THE CONTRACTOR SHALL SOD OR PLANT ALL SLOPES AND EXPOSED AREAS IMMEDIATELY AFTER THE GRADING WORK HAS BEEN COMPLETED.
- FILLS ON SLOPES STEEPER THAN 5:1 SHALL BE KEYED.
- THE CONTRACTOR SHALL INFORM THE DPW OF THE LOCATION OF THE DISPOSAL AND/OR BORROW SITE(S) REQUIRED FOR THIS PROJECT WHEN AN APPLICATION FOR A GRADING PERMIT IS MADE. THE DISPOSAL AND/OR BORROW SITE(S) MUST ALSO FULFILL THE REQUIREMENTS OF THE GRADING ORDINANCE.
- NO GRADING WORK SHALL BE DONE ON SATURDAYS, SUNDAYS, AND HOLIDAYS ANYTIME WITHOUT PRIOR APPROVAL FROM THE ENGINEER. GRADING WORK ON NORMAL WORKING DAYS SHALL BETWEEN THE HOURS OF 7:00 A.M. TO 3:00 P.M.
- FILLS SHALL BE COMPACTED TO 90 PERCENT (90%) OF MAXIMUM DENSITY PER ASTM D-1557 TEST.
- THE CONTRACTOR SHALL REMOVE ALL VEGETATION BEFORE PLACING FILLS ON NATURAL GROUND SURFACE.

ESTIMATED EARTHWORK QUANTITIES:

TOTAL EXCAVATION: 0 CU. YDS.
 TOTAL EMBANKMENT: 842 CU. YDS.

- THE QUANTITIES SHOWN ARE FOR GRADING PERMIT PURPOSES ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT QUANTITIES FOR BIDDING PURPOSES.

EARTHWORK QUANTITIES SHOWN WERE TAKEN FROM EXISTING GROUND TO FINISH GRADE.

TOTAL AREA TO BE GRADED 0.22 ACRES

SOLID WASTE CONSTRUCTION NOTES:

- UNLESS OTHERWISE SPECIFIED, THE CONTRACTOR IS RESPONSIBLE FOR THE PROPER HANDLING, STORAGE AND/OR DISPOSAL OF ALL WASTE GENERATED BY THIS CONSTRUCTION INCLUDING GRUBBING AND EXCESS EXCAVATED MATERIAL. ANY MATERIAL BROUGHT TO THE COUNTY LANDFILLS WILL BE SUBJECTED TO THE INSTITUTED TIPPING FEE SYSTEM, WITH NO EXCEPTIONS OR EXEMPTIONS
- ALL WASTES GENERATED BY CONSTRUCTION, INCLUDING GRUBBING, DEMOLITION AND EXCESS EXCAVATION MATERIAL MAY BE BROUGHT TO THE WEST HAWAII OR THE HILO LANDFILL. THE CONTRACTOR SHALL CHECK WITH THE SOLID WASTE DIVISION FOR DISCLOSURE OF THE CURRENT LANDFILL FEE AND CONSIDERATION OF THAT FEE SHALL BE INCLUDED IN THE CONTRACTOR'S BID SUM.
- CONSTRUCTION, DEMOLITION AND GRUBBING MATERIAL SHALL NOT BE DEPOSITED AT ANY OF THE COUNTY TRANSFER STATIONS, BUT SHALL BE TRANSPORTED FOR DISPOSAL AT EITHER THE WEST HAWAII OR HILO LANDFILL.
- ASBESTOS MATERIAL MUST BE SEPARATED, DOUBLE BAGGED AND LANDFILLED IN ACCORDANCE WITH REGULATIONS OF THE SOLID WASTE DIVISION, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT. INFORMATION MAY BE OBTAINED BY CALLING THE DIVISION AT (808) 961-8339 BETWEEN 7:00 AM AND 4:00 PM MONDAY THROUGH FRIDAY.
- ALL GREEN WASTE GENERATED FROM GRUBBING WORK, SHALL BE SEPARATED AND DEPOSITED AT THE GREEN WASTE AREA AT THE HILO OR WEST HAWAII DISPOSAL SITE. (NOTE: NO TREATED LUMBER IS ALLOWED IN THE GREEN WASTE)
- RECYCLE AS MUCH OF THE SOLID WASTE MATERIAL GENERATED BY THIS CONSTRUCTION AS POSSIBLE. EXCESS MATERIAL SHALL BE DISPOSED OF PROPERLY.
- CONTRACTOR SHALL SUBMIT A REPORT PRIOR TO THE COMMENCEMENT OF WORK, PER SOLID WASTE DEMOLITION PLAN GUIDELINES, AS AMENDED. AVAILABLE AT THE COUNTY OF HAWAII, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT OFFICE.

NOTES FOR WORK WITHIN THE ROAD-OF-WAY

- THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES, WHETHER SHOWN ON THE PLAN OR NOT, AND SHALL BE RESPONSIBLE FOR THE REPAIR OR REPLACEMENT OF SAME IN THE EVENT OF DAMAGES DUE TO HIS CONSTRUCTION PARACTICES. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH THE RESPECTIVE UTILITY COMPANIES.
- THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL TRAFFIC CONTROL DEVICES IN CONFORMANCE WITH THE CURRENT EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS," AND AS DIRECTED BY THE ENGINEER.
- THE PROPOSED UTILITY LINE LOCATION SHALL BE LAID OUT IN THE FIELD PRIOR TO THE CONDUCTING OF THE FIELD REVIEW BY THE ENGINEER.
- FIELD ADJUSTMENTS SHALL BE MADE AS DIRECTED BY THE ENGINEER PRIOR TO THE COMMENCEMENT OF ANY UTILITY LINE WORK.
- THE CONTRACTOR SHALL PROVIDE AT LEASE ONE (1) LANE FOR TRAFFIC MOVEMENT AT ALL TIMES. TWO (2) LANES FOR TRAFFIC MOVEMENT SHALL BE PROVIDED BETWEEN THE HOURS OF 3:00 P.M. TO 8:00 A.M.
- THE EXISTING PAVEMENT SHALL BE SAW-CUT BEFORE COMMENCEMENT OF TRENCHING WORK.
- ANY PAVEMENT OUTSIDE THE CONTRACT ZONE LIMITS DAMAGED AS A RESULT OF CONSTRUCTION OPERATIONS SHALL BE RESTORED TO ITS ORIGINAL CONDITION, OR BETTER, AS DIRECTED BY THE ENGINEER.
- A TEMPORARY COLD MIX PATCH SHALL BE APPLIED IMMEDIATELY UPON COMPLETION OF THE BACKFILLING OPERATION AND SHALL BE MAINTAINED BY THE CONTRACTOR UNTIL A PERMANENT PATCH IS AUTHORIZED BY THE ENGINEER.
- NO MATERIAL, EXCEPT THE TRENCH EXCAVATED MATERIAL, SHALL BE STOCKPILED CLOSER THAN SIX (6) FEET FROM THE EXISTING EDGE OF PAVEMENT.
- NO CONSTRUCTION EQUIPMENT SHALL BE PARKED WITHIN THE ROAD RIGHT-OF-WAY IN SUCH A MANNER THAT THE EQUIPMENT WILL OBSTRUCT THE NORMAL MOVEMENT AND SIGHT DISTANCE OF THE DRIVING MOTORIST, EXCEPT DURING ACTUAL WORKING HOURS.
- EXCEPT DURING ACTUAL WORKING HOURS, ALL SIGNS THAT DO NOT PERTAIN TO THE CONSTRUCTION ACTIVITY, SUCH AS "MEN WORKING" AND "FLAGMAN AHEAD" SHALL BE COVERED OR LAID DOWN. HOWEVER, ALL SIGNS NECESSARY FOR THE SAFETY OF THE PUBLIC SHALL BE MAINTAINED.
- ANY PAVEMENT MARKINGS, STRUCTURES, AND APPURTENANCES (WITHIN OR OUTSIDE OF THE CONTRACT ZONE LIMITS) DAMAGED AND/OR WORN AWAY UNDER THE PERMIT SHALL BE REPAINTED OR RECONSTRUCTED AS DIRECTED BY THE ENGINEER.
- NO TRENCHING SHALL BE LEFT OPEN FOR MORE THAN FIVE (5) WORKING DAYS.
- SHOULD TRENCING OCCUR THROUGH AN EXISTING SIDEWALK, OR SHOULD DAMAGES OCCUR TO THE SIDEWALK AS A RESULT OF ANY CONSTRUCTION WORK, THE FOLLOWING PROCEDURE SHALL BE UTILIZED TO REPAIR THE SIDEWALK:
 - ALL PORTLAND CEMENT CONCRETE TO BE REMOVED SHALL FIRST BE CUT WITH A CONCRETE SAW THAT HAS A DIAMOND OR CARBORUNDUM ABRASIVE WHEEL. THOSE CUTS SHALL BE MADE TO A DEPTH EQUAL TO AT LEAST ONE-FOURTH OF THE DEPTH OF THE SLAB, OR ENOUGH AS IS DEEMED NECESSARY BY THE DEPARTMENT OF PUBLIC WORKS, TO PERMIT BREAKING OUT THE BALANCE OF THE CONCRETE WITHOUT SPALLING OFF THE EXPOSED EDGES OF THE SLAB LEFT IN PLACE.
 - IF ANY CONCRETE BLOCK IS TOUCHED, THE WHOLE BLOCK SHALL BE REMOVED AND LATER REPLACED, UNLESS A MINOR VARIATION IS AUTHORIZED BY THE DPW OR IT'S REPRESENTATIVE.
 - ANY DAMAGES TO ADJACENT AREAS DUE TO SETTLEMENT OR TO ANY OTHER EFFECTS WHATSOEVER CAUSED BY THE CONSTRUCTION WORK SHALL BE PROPERLY REPAIRED AND CORRECTED.

STRUCTURAL BEST MANAGEMENT PRACTICES (BMPS):

- THE CONTRACTOR SHALL INSPECT EROSION AND SEDIMENT CONTROL MEASURES WEEKLY AND AFTER 0.5 INCHES OF RAINFALL.
- IF REPAIRS TO OR MAINTENANCE OF THE CONTRACTOR'S EROSION CONTROL MEASURES ARE NECESSARY, THE CONTRACTOR SHALL INITIATE THE REPAIRS OR MAINTENANCE WITHIN TWENTY-FOUR (24) HOURS AFTER INSPECTION AND NOTING OF THE DEFICIENCY.

REPAIRS AND MAINTENANCE MAY INCLUDE THE FOLLOWING:

- REPLACING GEO-JUTE FABRIC WHEN TEARS ARE FOUND, AND ENSURING THAT THE FABRIC IS SECURELY ATTACHED FIRMLY IN THE GROUND.
- RESTORING BARE SPOTS AND WASHOUTS, AND ENSURING HEALTHY PLANT GROWTH IN BOTH TEMPORARY AND PERMANENT SEEDED AND PLANTED AREAS.

- THE CONTRACTOR SHALL MAKE EVERY EFFORT TO INSTALL STRUCTURAL BMPS AS NEAR TO THE POLLUTANT SOURCE AS PRACTICABLE. INLET PROTECTION SHALL SERVE AS THE LAST MEASURE TO PREVENT POLLUTANTS FROM ENTERING THE STORM DRAIN SYSTEM.

- THE CONTRACTOR SHALL BACKFILL TRENCHES AND PROVIDE COLD MIX PATCHES TO MATCH ADJOINING PAVEMENT GRADE AT THE END OF EACH WORK DAY.

- STABILIZED CONSTRUCTION ENTRANCE:

ALL POINTS OF EGRESS AND INGRESS TO A SITE SHALL BE PROTECTED WITH A STABILIZED CONSTRUCTION ENTRANCE, 20' X 20' X 8" THICK CRUSHED ROCK LAYER OVER A GEOTEXTILE FABRIC BASE IN THE LOCATION(S) SHOWN ON THE EROSION CONTROL PLAN.

- DUST CONTROL:

DUST CONTROL, INCLUDING DUST BARRIERS, WATERING, ETC., SHOULD BE APPLIED TO REDUCE DUST EMISSIONS. THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL KEEP THE PROJECT AREA AND SURROUNDING AREA FREE FROM DUST NUISANCE. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL STANDARDS CONTAINED IN HAWAII ADMINISTRATIVE RULES: CHAPTER 11-60, "AIR POLLUTION CONTROL",

- SEDIMENT BARRIERS OR TRAPS:

SEDIMENT TRAPPING DEVICES SUCH AS FENCES, TRAPS, BASINS OR BARRIERS SHALL BE USED DOWN SLOPE OF ALL DISTURBED AREAS AND AROUND THE BASE OF ALL MATERIAL STOCKPILES.

- INLET PROTECTION:

ALL STORM DRAIN INLETS ON SITE, AND THOSE OFFSITE WHICH MAY RECEIVE RUNOFF FROM THE SITE SHALL USE AN INLET PROTECTION DEVICE.

- PERMANENT STABILIZATION:

ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED PRIOR TO REMOVING EROSION AND SEDIMENT MEASURES. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED. TRAPPED SEDIMENT AND AREAS OF DISTURBED SOIL WHICH RESULT FROM THE REMOVAL OF THE TEMPORARY MEASURES SHALL BE IMMEDIATELY PERMANENTLY STABILIZED.

LEGEND:

A.C.	ASPHALT CONCRETE	NIC	NOT IN CONTRACT
ARV	AIR RELEASE VALVE	OH	OVERHEAD
BOT.	BOTTOM	PAV'T	PAVEMENT
BW	BOTTOM WALL	PE	PAD ELEVATION
C.O.	CLEAN OUT	S	SEWER OR SPREAD
COGN.	CONCRETE	SDMH	STORM DRAIN MANHOLE
CRM	CONCRETE RUBBLE MASONARY	SMH	SEWER MANHOLE
D	DIAMETER OR DRAIN	SS	SANITARY SEWER
E/ELEC.	ELECTRIC	ST.	STREET
ELEV./E	ELEVATION	STA.	STATION
FFE	FINISH FLOOR ELEVATION	TB	TOP OF BOX
F.H.	FIRE HYDRANT	TG	TOP OF GRATE
G.P.	GUARD POST/GUY POLE/GATE POST	TP	TOP PIPE
H	HEIGHT	TS	TOP STEM
IG	INVERT GRADE	TV	TOP VALVE
INV.	INVERT	TW	TOP WALL
M.B.	MAIL BOX	U.P.	UTILITY POLE
MH	MANHOLE	U.P./S.L.	UTILITY POLE W/STREET LIGHT
MON	MONUMENT	W	WATER
		WM	WATER METER
		WMH	WATER MANHOLE
		WV	WATER VALVE BOX

NO.	DATE	DWG. CHK.	REVISIONS

This work was prepared by me or under my direct supervision and I am a duly Licensed Professional Engineer. Exp. 04-30-16

Wesley R. Sagawa & Associates, Inc.
 Wesley R. Sagawa, P.E.
 No. 4004-C



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Project Title: **KEAUKAHA TRACT 1 IMPROVEMENTS**

Sheet Title: **LOTS 59-B-1 AND 59-B-2 MISCELLANEOUS NOTES**

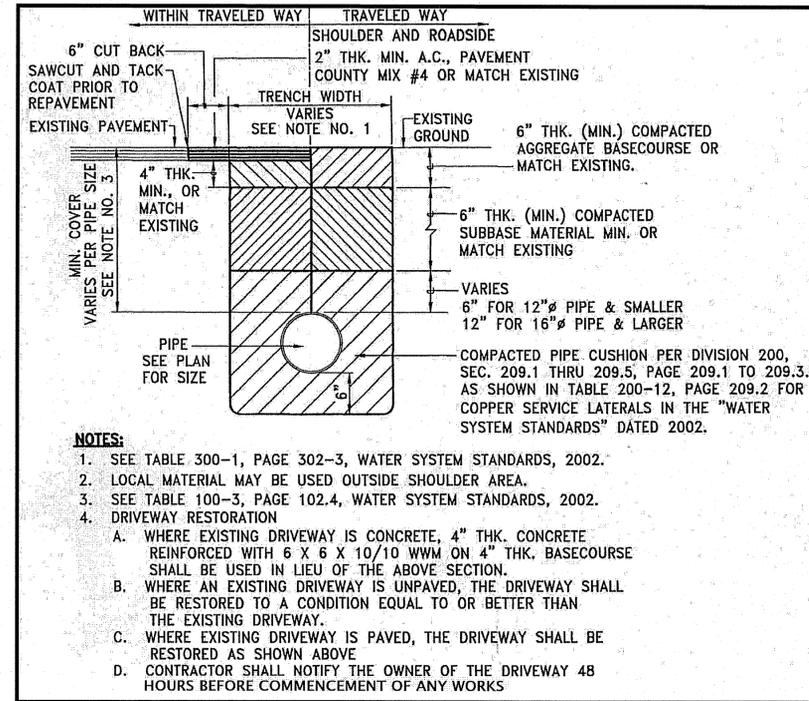
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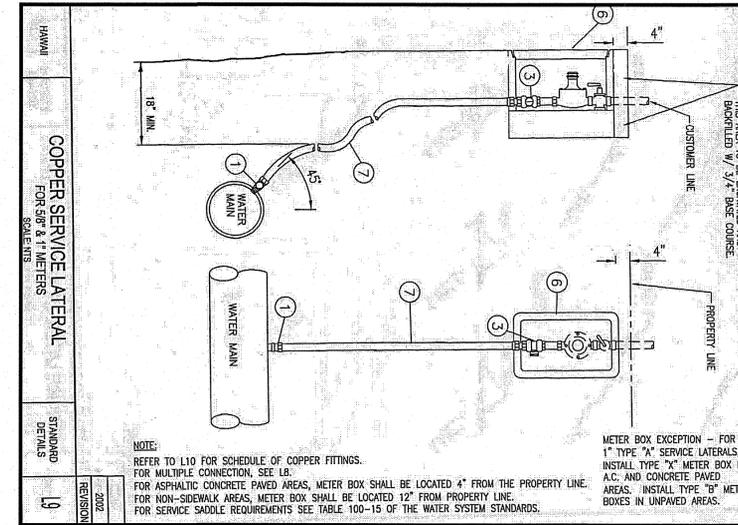
SHEET No. **2** OF **9** SHTS.

WATERLINE NOTES:

- ALL WORK SHALL BE DONE ACCORDING TO THE WATER SYSTEM STANDARDS, STATE OF HAWAII, DATED 2002, AS AMENDED.
- ALL EXISTING WATERLINES, WATERLINE, APPURTENANCES AND OTHER UTILITY LOCATIONS SHOWN ON THE PLANS ARE OBTAINED FROM THE LATEST RELIABLE SOURCES. THE CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY THE EXACT LOCATION OF ALL UTILITIES IN THE FIELD AND SHALL BEAR ALL COSTS FOR DAMAGE DONE DURING THE CONTRACT PERIOD.
- THE CONTRACTOR SHALL INFORM THE D.W.S. ENGINEER 72 HOURS PRIOR TO THE BEGINNING OF ANY WATERLINE WORK AND TWO WEEKS PRIOR TO ANY CONNECTION, CHLORINATION, SHUT-OFF OR RELOCATION WORK.
- ALL CONNECTIONS TO THE WATER SYSTEMS SHALL BE DONE BY THE D.W.S. THE CONTRACTOR SHALL PERFORM ALL EXCAVATION, BACKFILL, ROAD REPAIR, TRAFFIC CONTROL, AND PROVIDE EQUIPMENT AND MATERIALS NECESSARY TO COMPLETE THE CONNECTION.
- THE CONTRACTOR SHALL PAY FOR ALL WORK, EQUIPMENT, AND MATERIAL FURNISHED BY THE D.W.S.
- MINIMUM VERTICAL CLEARANCE BETWEEN WATERLINES AND OTHER UTILITIES SHALL BE 12-INCHES PROVIDED THE OTHER UTILITY IS CONCRETE JACKETED, AND 18-INCHES IF NO CONCRETE JACKETS ARE USED. IN ALL APPLICABLE INSTANCES, THE WATERLINES SHALL BE AT A GRADE HIGHER THAN OTHER UTILITIES. UTILIZE PERPENDICULAR CROSSINGS WHERE PRACTICABLE FOR WATERLINES, CENTER FULL PIPE LENGTHS AT UTILITY CROSSINGS WHENEVER POSSIBLE.
- MINIMUM HORIZONTAL CLEARANCE BETWEEN WATERLINES AND OTHER UTILITIES SHALL BE 8-FOOT (CLEAR SPACE - NOT CENTERLINE TO CENTERLINE) FOR ROAD RIGHT-OF-WAYS OF 50 FEET OR LESS, AND 10-FOOT FOR ROAD RIGHT-OF-WAYS OF MORE THAN 50 FEET.
- ALL WATER SYSTEM PIPELINES, 4-INCHES OR LARGER IN DIAMETER, SHALL BE DUCTILE IRON, PUSH ON JOINTS, CLASS 52, AND ALL PIPELINES SMALLER THAN 4-INCHES IN DIAMETER SHALL BE SOFT COPPER, TYPE "K", UNLESS OTHERWISE SPECIFIED.
- PIPE CUSHION FOR COPPER SERVICE LATERALS SHALL BE NO. 4 MANUFACTURED FINE SAND.
- METER BOXES FOR 5/8-INCH METERS PLACED OUTSIDE OF PAYMENT TO BE TYPE "B" PER STD DETAILS M1 & M2. METER BOXES FOR 1-INCH METERS OR FOR 5/8-INCH STD DETAIL M3.
- RELOCATION OF EXISTING METERS SHALL BE DONE UNDER D.W.S. SUPERVISION. RELOCATION OF CUSTOMER SERVICE LINES TO RELOCATED METERS SHALL BE COPPER (TYPE "K") AND DONE BY THE CONTRACTOR. ALL WORK AND MATERIALS SHALL BE PROVIDED BY THE CONTRACTOR AND CONSIDERED INCIDENTAL TO THE RELOCATION WORK. EXISTING METER BOXES DAMAGED BY THE CONTRACTOR SHALL BE REPLACED AT THE CONTRACTOR'S COST. WHEN APPLICABLE, A DIELECTRIC UNION SHALL BE USED TO CONNECT THE COPPER PIPE TO THE CUSTOMER'S GALVANIZED IRON (G.I.) PIPE.
- SOLDER (1/8-INCH DIA.) AND FLUX USED SHALL NOT CONTAIN MORE THAN 0.2% LEAD
- LOTS REQUIRING A DEPARTMENT OF WATER SUPPLY APPROVED BACKFLOW PREVENTION ASSEMBLY SHALL HAVE ONE. IT MUST BE INSTALLED ON PRIVATE PROPERTY IN ACCORDANCE WITH D.W.S. STANDARD DETAIL NO. V9 AND DEPARTMENTAL STAFF MUST APPROVE THE INSTALLATION BEFORE WATER SERVICE CAN BE STARTED.
- WHERE WATER SHUT-OFF OF MORE THAN 3 HOURS BECOMES NECESSARY, THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL PROVIDE A TEMPORARY BY-PASS LINE. THE DWS ENGINEER SHALL DETERMINE THE BY-PASS LINE SIZE. IF NECESSARY, THE DWS ENGINEER MAY REQUIRE A BY-PASS LINE, REGARDLESS OF THE EXPECTED SHUT-OFF PERIOD.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR RECORD DRAWINGS (AS-BUILT DRAWINGS) AND THE LICENSED ENGINEER SHALL CERTIFY THE DRAWINGS AS TO ACCURACY AND SUBMIT THE DRAWINGS AND AS-BUILT TRACINGS TO THE DWS.
- AFTER JANUARY 4, 2014, ALL BRASS PRODUCTS MUST CONFORM TO NSF STANDARD 61 AND NSF STANDARD 372 OF THE SDWA, AND BE CERTIFIED AS "LEAD-FREE" BY THE MANUFACTURER. "LEAD-FREE" IS DEFINED AS THE ALLOWABLE LEAD CONTENT OF NOT MORE THAN 0.25% IN THE WETTED SURFACE. CERTIFICATION FROM THE MANUFACTURER MUST BE SUBMITTED TO THE DEPARTMENT OF WATER SUPPLY FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION. ANY BRASS PRODUCT INSTALLED WITHOUT APPROVAL MUST BE REMOVED AT NO EXPENSE TO THE DEPARTMENT.
- BOXED WATERLINE DETAILS BELOW TAKEN FROM THE WATER SYSTEM STANDARDS.



1 TYPICAL TRENCH AND PAVEMENT C-3 REPAIR SECTION FOR WATERLINES NOT TO SCALE



2 TYPICAL SINGLE SERVICE LATERAL C-3 NOT TO SCALE

SERVICE LATERAL AND CONNECTION MATERIAL SCHEDULE											
SERVICE CONNECTION MATERIAL											
SERVICE LATERAL MATERIAL											
TYPE	SIZE	BRONZE BALL CORP. (a)		BRONZE CURB STOP (b)		TEE C x C (c)		90 ELBOW (d)		METER (e)	
		QTY.	SIZE	QTY.	SIZE	QTY.	SIZE	QTY.	SIZE	QTY.	SIZE
A	1-1/2	1	1-1/2	1	1-1/2	1	1-1/2	1	1-1/2	1	1-1/2
B	1-1/2	1	1-1/2	1	1-1/2	1	1-1/2	1	1-1/2	1	1-1/2
C	1-1/2	1	1-1/2	1	1-1/2	1	1-1/2	1	1-1/2	1	1-1/2
D	1-1/2	1	1-1/2	1	1-1/2	1	1-1/2	1	1-1/2	1	1-1/2

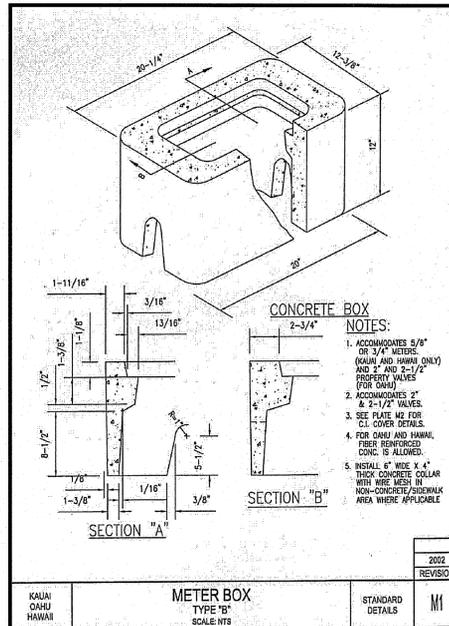
(a) BRONZE BALL CORP. INLET: WWA TAPER; OUTLET: METER COUPLING W/ ADAPTER (F.P.T. x PACK JOINT) OR M.P.T. W/ BRASS UNION (F.P.T. x C)

(b) BRONZE BALL CURB STOP INLET-OUTLET: PACK JOINTS OR F.P.T. W/ ADAPTER (C x MPT)

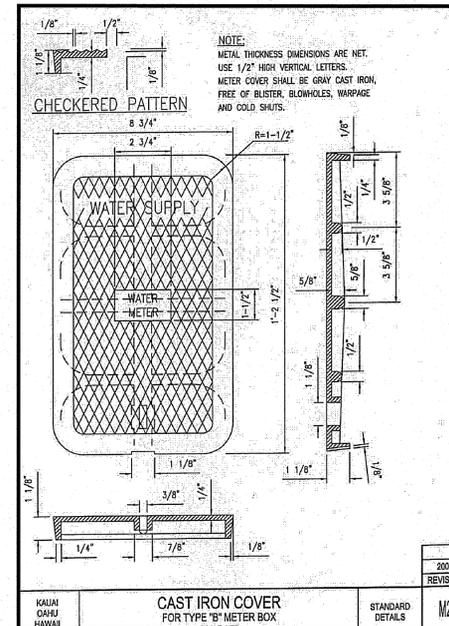
(c) 1" SERVICE CONNECTION (TO FIT 1" COPPER PIPE) OUTLET: METER COUPLING FOR 5/8" x 3/4" METER

(d) CUSTOMER VALVE: BALL VALVE WITH HAND LEVER INLET: METER COUPLING OR FLANGE, PACK JOINT, OR F.P.T. OUTLET: F.P.T. OR PACK JOINT.

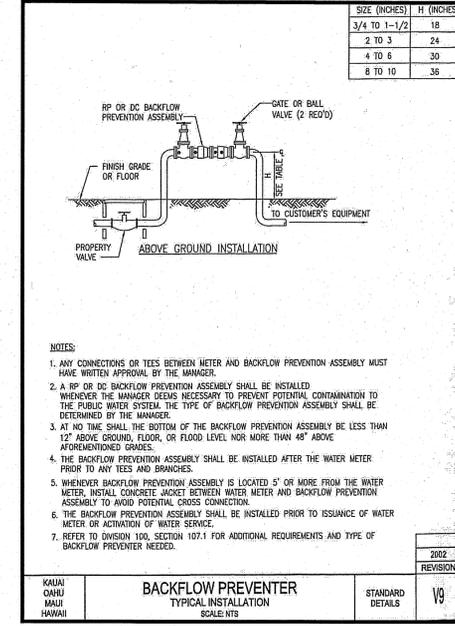
3 SCHEDULE OF COPPER FITTINGS C-3 NOT TO SCALE



4 METER BOX TYPE "B" C-3 NOT TO SCALE



5 CAST IRON COVER FOR TYPE "B" METER BOX NOT TO SCALE



6 BACKFLOW PREVENTER C-3 NOT TO SCALE

NO.	DATE	D.W.S.	CHK.	REVISIONS
1	4/17/2016	3, 4, 5, & 8	1	INSTALL BACKFLOW PREVENTER

This work was prepared by me or under my direct supervision and I am a duly Licensed Professional Engineer. Exp. 04-30-16

Wesley F. Sogawa & Associates, Inc.
Professional Engineer
No. 4004-C
HAWAII

WRSA
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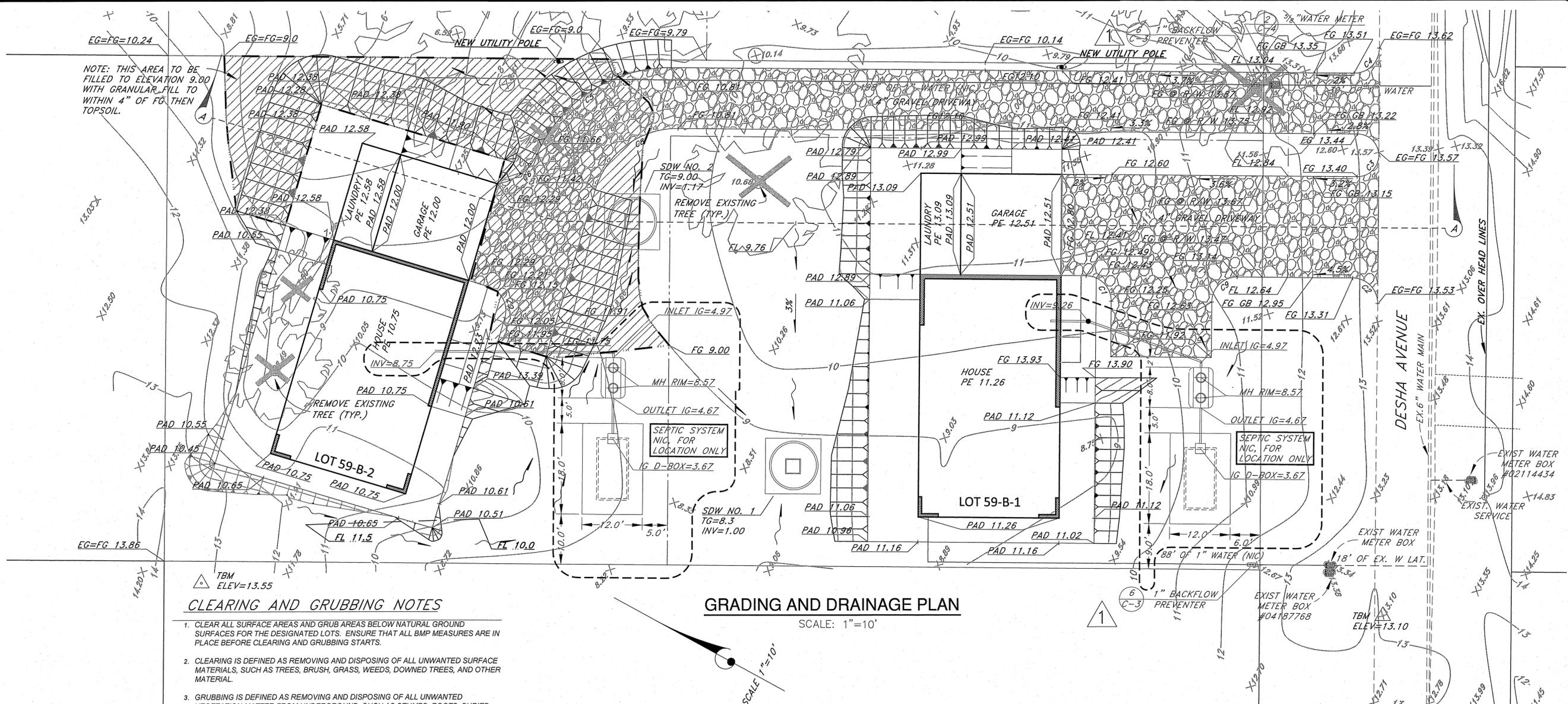
Project Title: IMPROVEMENTS FOR KEAUKAHA TRACT 1 LOTS 59-B-1 AND 59-B-2 WATER NOTES & DETAILS

Sheet Title: WATER NOTES & DETAILS

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SHEET No. 4 OF 9 SHTS.



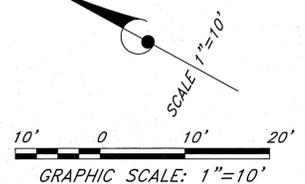
NOTE: THIS AREA TO BE FILLED TO ELEVATION 9.00 WITH GRANULAR FILL TO WITHIN 4" OF FG THEN TOPSOIL.

CLEARING AND GRUBBING NOTES

1. CLEAR ALL SURFACE AREAS AND GRUB AREAS BELOW NATURAL GROUND SURFACES FOR THE DESIGNATED LOTS. ENSURE THAT ALL BMP MEASURES ARE IN PLACE BEFORE CLEARING AND GRUBBING STARTS.
2. CLEARING IS DEFINED AS REMOVING AND DISPOSING OF ALL UNWANTED SURFACE MATERIALS, SUCH AS TREES, BRUSH, GRASS, WEEDS, DOWNED TREES, AND OTHER MATERIAL.
3. GRUBBING IS DEFINED AS REMOVING AND DISPOSING OF ALL UNWANTED VEGETATION MATTER FROM UNDERGROUND, SUCH AS STUMPS, ROOTS, BURIED LOGS, AND OTHER MATERIAL.
4. DEBRIS IS DEFINED AS USABLE OR UNWANTED MATERIAL PRODUCED BY CLEARING AND GRUBBING.
5. CLEARING AND GRUBBING ALSO INCLUDES HERBICIDE MAINTENANCE. HERBICIDE MAINTENANCE INCLUDES APPLICATION OF WEED CONTROLLING CHEMICALS, APPLIED ONCE PER MONTH FREQUENCIES FOR ONE YEAR (12 MONTHS) DURATION. THE SELECTED HERBICIDE IS ROUND UP (GLYPHOSATE) OR AN EQUAL HERBICIDE CHEMICAL, TO BE APPROVED BY DHHL. THE HERBICIDE DOSAGE USED IN ALL APPLICATIONS SHALL BE FOR DESTROYING BROADLEAF WEEDS.
6. LIMITS - CLEARING AND GRUBBING WORK IS INTENDED TO BE WITHIN THE HOUSE LOT PARCEL. ANY WORK OUTSIDE OF THE HOUSE LOT PARCEL REQUIRES PRIOR APPROVAL BY DHHL AND THE AFFECTED ADJACENT LEASE HOLDER.
7. REMOVAL AND DISPOSAL OF MATERIAL - REMOVE MATERIAL AND DEBRIS, AND DISPOSE OF AT AN AUTHORIZED DISPOSAL SITE. OBTAIN WRITTEN AUTHORIZATION FROM PROPERTY OWNERS AND GOVERNMENT AUTHORITIES FOR DISPOSAL LOCATIONS OUTSIDE ROAD-RIGHT-OF-WAY LIMITS. LEAVE AREAS WITH NEAT AND FINISHED APPEARANCE.

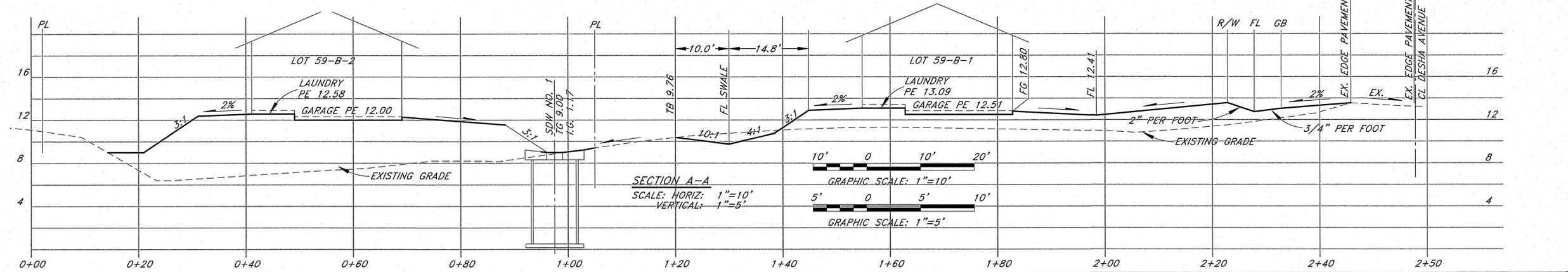
GRADING AND DRAINAGE PLAN

SCALE: 1"=10'



Curve #	Length	Radius	Delta	Chord Direction	Chord Length
C1	7.85	5.00	90.00	N16° 54' 00"E	7.07
C2	7.85	5.00	89.98	N16° 53' 30"E	7.07
C3	13.35	4.25	180.00	N61° 54' 00"E	8.50
C4	7.86	5.00	90.07	S73° 08' 14"E	7.08
C5	33.59	29.00	66.36	N61° 16' 41"W	31.74

Curve #	Length	Radius	Delta	Chord Direction	Chord Length
C6	10.21	10.00	58.48	S65° 13' 01"E	9.77
C7	7.85	5.00	90.00	N33° 00' 00"E	7.07
C8	21.93	17.00	73.90	N65° 03' 00"W	20.44
C9	7.85	5.00	90.00	N73° 06' 00"W	7.07



Project Title: IMPROVEMENTS FOR KEAUKAHA TRACT 1 LOTS 59-B-1 AND 59-B-2 GRADING AND DRAINAGE PLAN

Sheet Title: SHEET No. 5 OF 9 SHTS.

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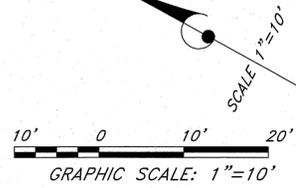
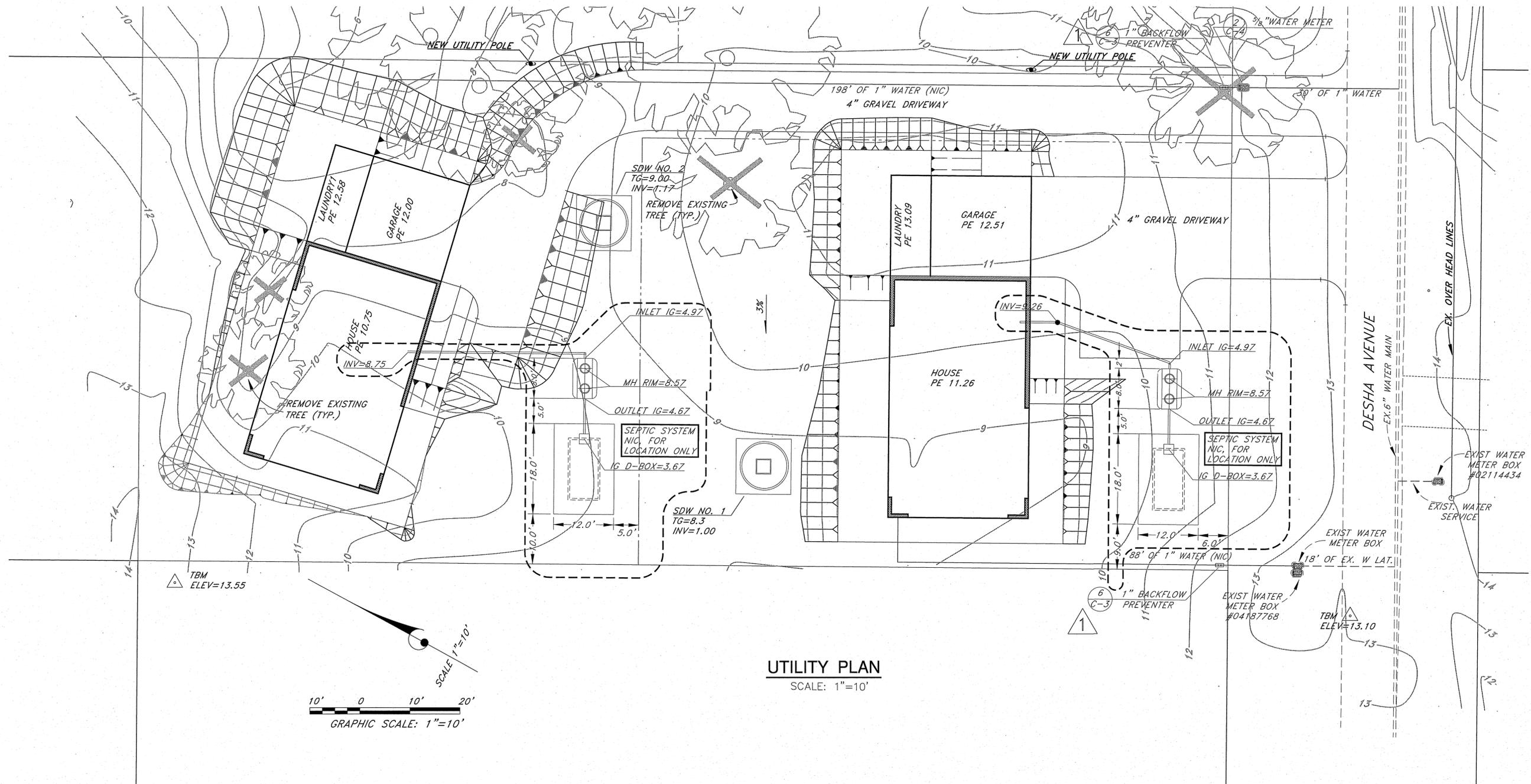
DRAWING No. **C-4**

WRSR
Wesley R. Segawa and Associates, Inc.
Civil & Structural Engineers
101 Silva Street, Suite 201 Hilo, Hawaii 96720-4755
Telephone: (808) 935-4677 Fax: (808) 935-2070

This work was prepared by me or under my direct supervision and I am a duly licensed Professional Engineer. My registration number is 4004-C. I am a member of the Hawaii State Board of Professional Engineers. Exp. 01-30-16

Wesley R. Segawa & Associates, Inc.
DENNIS K. W. LEE
LICENSED PROFESSIONAL ENGINEER
No. 4004-C
HAWAII

NO. DATE DWG. CHK. REVISIONS
4/5/2016 3, 4, 5, & 8 INSTALL BACKFLOW PREVENTER
DATE DATE PRINTS TO



UTILITY PLAN
SCALE: 1"=10'

NO.	DATE	DWG.	CHKD.	REVISIONS
1	4/5/2016	3, 4, 5, & 8		INSTALL BACKFLOW PREVENTER
2				
3				
4				
5				
6				
7				
8				
9				
10				

This work was prepared by me or under my supervision and construction of this project will be under my observation.
Exp. 04-30-16

Wesley R. Sengwa & Associates, Inc.
Wesley R. Sengwa, P.E., P.S.
No. 4004-C
HAWAII

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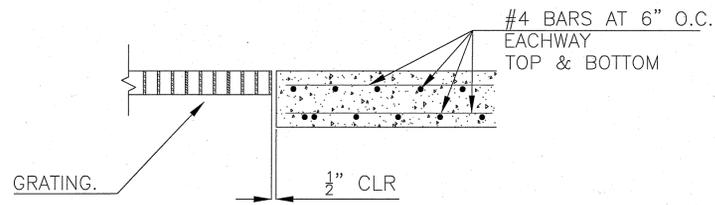
Project Title: **IMPROVEMENTS FOR KEAUKAHA TRACT 1 LOTS 59-B-1 AND 59-B-2 UTILITY PLAN**

Sheet Title: **UTILITY PLAN**

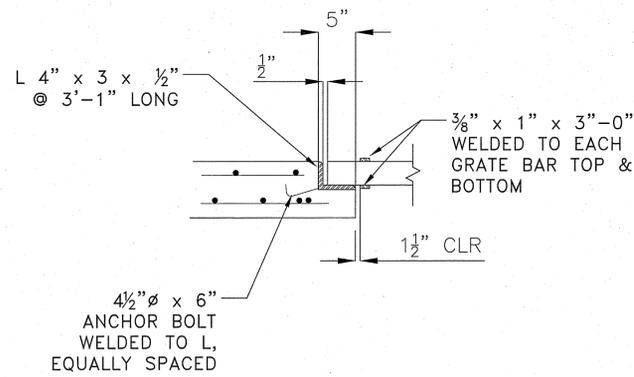
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DRAWN BY: DRB
CHECKED BY: DL
APPROVED BY: DL
DATE: X
SCALE: AS NOTED
FILE No. W1302.44

DRAWING No. **C-5**

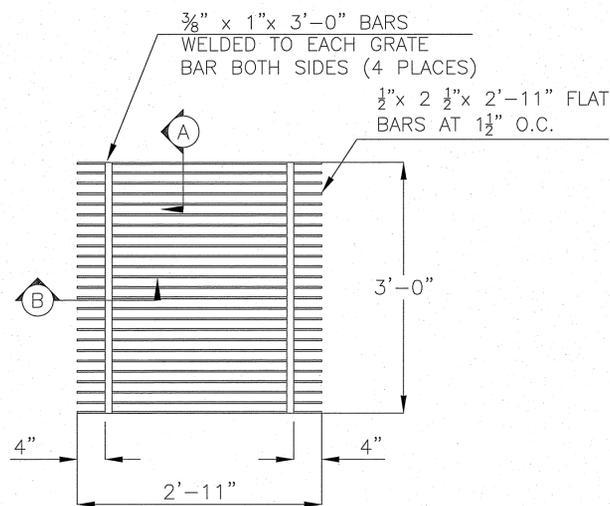
SHEET No. **6**
OF **9** SHTS.



SECTION A-A
NOT TO SCALE



SECTION B-B
NOT TO SCALE

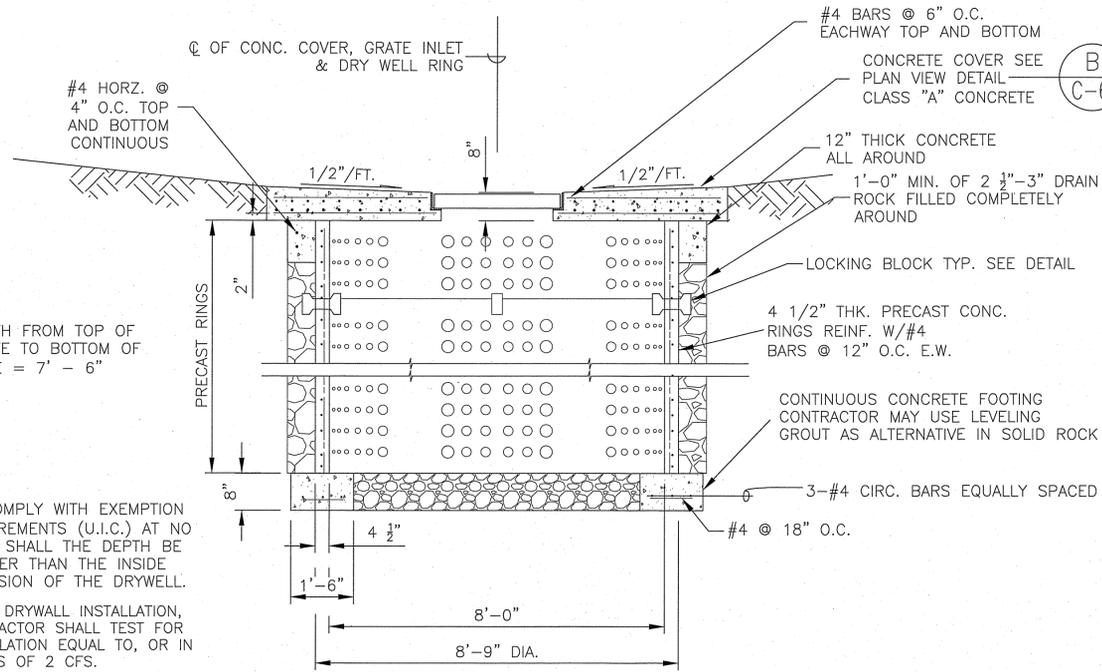


GRATING
NOT TO SCALE

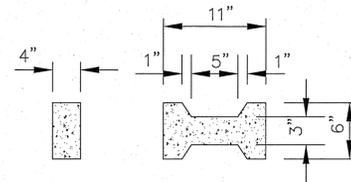
(A) DRYWELL GRATE DETAIL
C-6 NOT TO SCALE

- NOTES:
1. TO COMPLY WITH EXEMPTION REQUIREMENTS (U.I.C.) AT NO POINT SHALL THE DEPTH BE GREATER THAN THE INSIDE DIMENSION OF THE DRYWELL.
 2. AFTER DRYWELL INSTALLATION, CONTRACTOR SHALL TEST FOR PERCOLATION EQUAL TO, OR IN EXCESS OF 2 CFS.

DEPTH FROM TOP OF GRATE TO BOTTOM OF HOLE = 7' - 6"

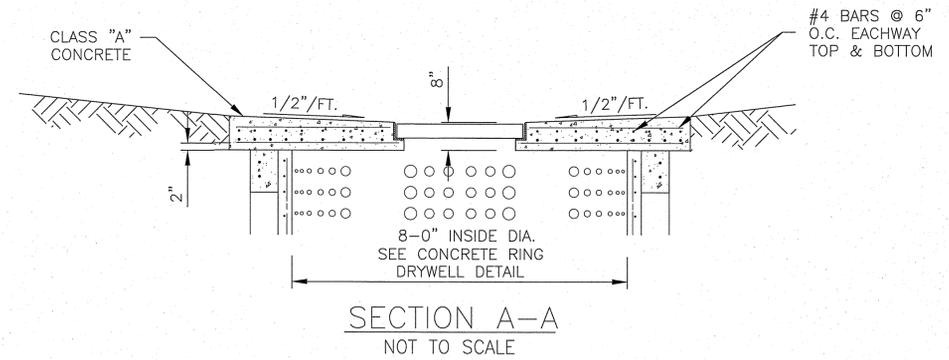


CONCRETE RING DRYWELL
NOT TO SCALE

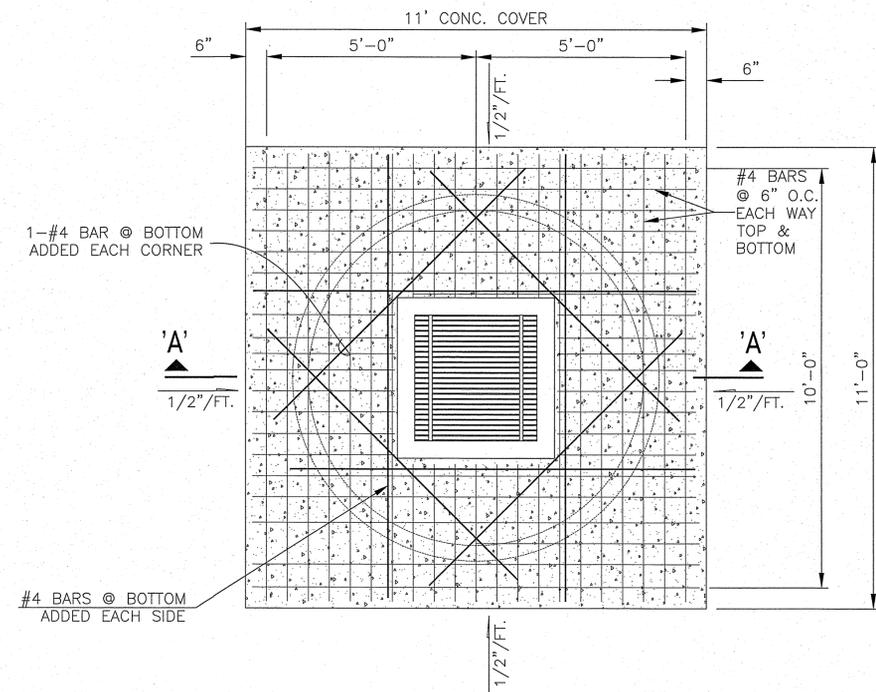


TYPICAL RING CROSS SECTION
NOT TO SCALE

(B) CONCRETE DRYWELL DETAIL
C-6 NOT TO SCALE



SECTION A-A
NOT TO SCALE



PLAN
NOT TO SCALE

NO.	DATE	BY	CHK.	REVISIONS

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Wesley R. Segawa & Associates, Inc.
Wesley R. Segawa, P.E.



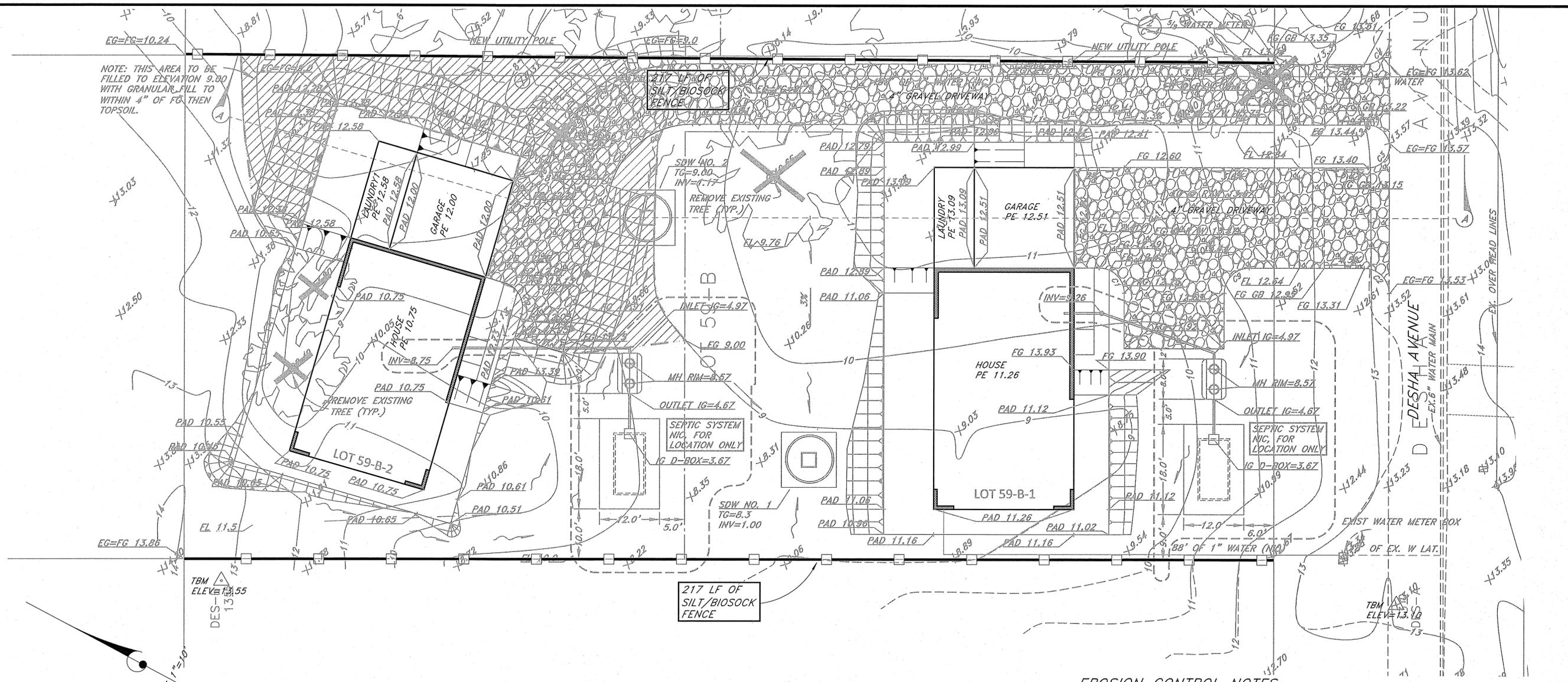
WRSA
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Civil & Structural Engineers
committed to quality performance & value

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Project Title: **KEAUKAHA TRACT 1 IMPROVEMENTS**
Sheet Title: **LOTS 59-B-1 AND 59-B-2 SHALLOW DRYWELL DETAILS**

DESIGN BY: DRB
DRAWN BY: DRB
CHECKED BY: DL
APPROVED BY: DL
DATE: X
SCALE: AS NOTED
FILE No. W1302.44

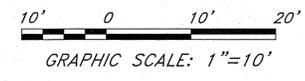
DRAWING No. **C-6**
SHEET No. **7**
OF **9** SHTS.



NOTE: THIS AREA TO BE FILLED TO ELEVATION 9.00 WITH GRANULAR FILL TO WITHIN 4" OF FG THEN TOPSOIL.

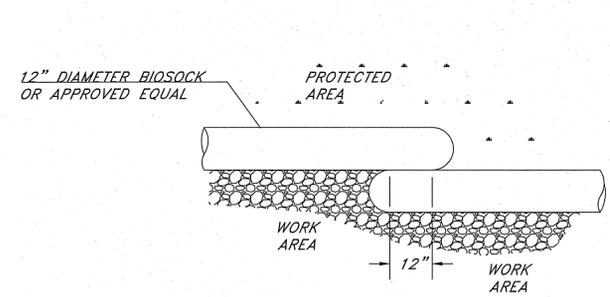
217 LF OF SILT/BIOSOCK FENCE

217 LF OF SILT/BIOSOCK FENCE



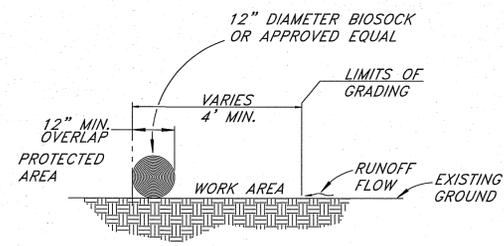
LEGEND:

SILT FENCE/BIOSOCK

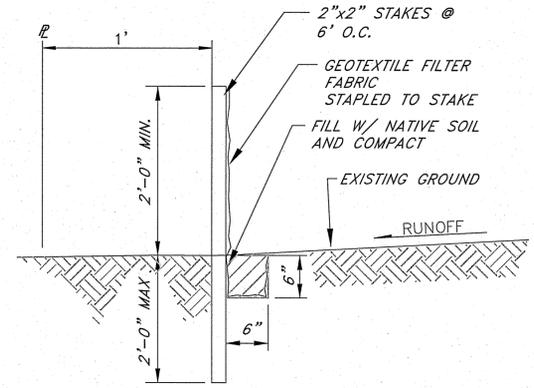


PLAN VIEW

BIOSOCK DETAIL (12" DIA)
NOT TO SCALE



ELEVATION VIEW



SILT FENCE NOTES:

BIOSOCK MAYBE USED IN LIEU OF SILT FENCE.

THE CONTRACTOR SHALL INSTALL SILT FENCES OR BIO-SOCK PRIOR TO CONSTRUCTION.

ALL BEST MANAGEMENT PRACTICES (BMP'S) SHALL NOT BE REMOVED UNTIL ALL PERMANENT EROSION CONTROL MEASURES ARE IN PLACE AND ESTABLISHED.

AT THE END OF GRADING OPERATIONS, EXISTING CB'S AND DMH'S SURROUNDING THE PROJECT SITE SHALL BE INSPECTED AND ANY ACCUMULATED SEDIMENT AND DEBRIS FOUND IN THE DRAIN STRUCTURES SHALL BE REMOVED. FLUSHING INTO THE CB'S AND DMH'S ARE PROHIBITED.

SILT FENCE DETAIL
NO SCALE

EROSION CONTROL NOTES:

1. THE CONTRACTOR SHALL REFER TO THE RULES RELATING TO SOILS EROSION STANDARDS AND GUIDELINES, APRIL 1999, BY THE CITY AND COUNTY OF HONOLULU DEPARTMENT OF PLANNING AND PERMITTING FOR BEST MANAGEMENT PRACTICES.
2. THE CONTRACTOR SHALL STABILIZE THE CONSTRUCTION SITE AT ALL POINTS OF EGRESS AND INGRESS WITH A 12' WIDE X 20' LONG X 8" DEEP SECTION OF NO. 2 CRUSHED ROCK.
3. STOCKPILES SHALL NOT BE LOCATED IN DRAINAGE WAYS OR OTHER AREAS OF CONCENTRATED FLOWS. SEDIMENT TRAPPING DEVICES SUCH AS FENCES, TRAPS, BASINS OR BARRIERS SHALL BE USED AROUND THE BASE OF ALL STOCKPILES.
4. DUST CONTROL SHOULD BE APPLIED TO REDUCE DUST EMISSIONS. THE CONTRACTOR, AT THEIR OWN EXPENSE, SHALL KEEP THE PROJECT AREA AND SURROUNDING AREA FREE FROM DUST NUISANCE. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL STANDARDS CONTAINED IN HAWAII ADMINISTRATIVE RULES: CHAPTER 11-60, "AIR POLLUTION CONTROL".
5. SURFACE FLOW FROM ABOVE AN EXPOSED SLOPE SHALL NOT BE ALLOWED TO FLOW OVER THE SLOPE WITHOUT PROTECTION. SLOPE PROTECTION SHALL BE USED ON AREAS WITH SLOPES GREATER THAN 50% AND ON AREAS OF MODERATE SLOPES THAT ARE PRIME TO EROSION.
6. ALL STORM DRAIN INLETS ON SITE, AND THOSE OFFSITE WHICH MAY RECEIVE RUNOFF FROM THE SITE SHALL USE AN INLET PROTECTION DEVICE.
7. TEMPORARY STABILIZATION IS NOT REQUIRED WHEN THE DISTURBED AREA WILL BE WORKED WITHIN A 14 DAY PERIOD. STABILIZATION IS REQUIRED FOR DISTURBED AREAS AT FINAL GRADE AND FOR THOSE AREAS THAT WILL NOT BE WORKED WITHIN A 14 DAY PERIOD.
8. ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED PRIOR TO REMOVING EROSION AND SEDIMENT MEASURES. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED. TRAPPED SEDIMENT AND AREAS OF DISTURBED SOIL WHICH RESULT FROM THE REMOVAL OF THE TEMPORARY MEASURES SHALL BE IMMEDIATELY PERMANENTLY STABILIZED.

NO.	DATE	BY	CHK.	REVISIONS

This work was prepared by me or under my direct supervision and I am a duly Licensed Professional Engineer. Exp. 04-30-16.

Wesley R. Segawa & Associates, Inc.
Wesley R. Segawa, P.E.
No. 400-C
HAWAII

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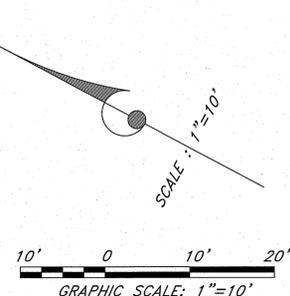
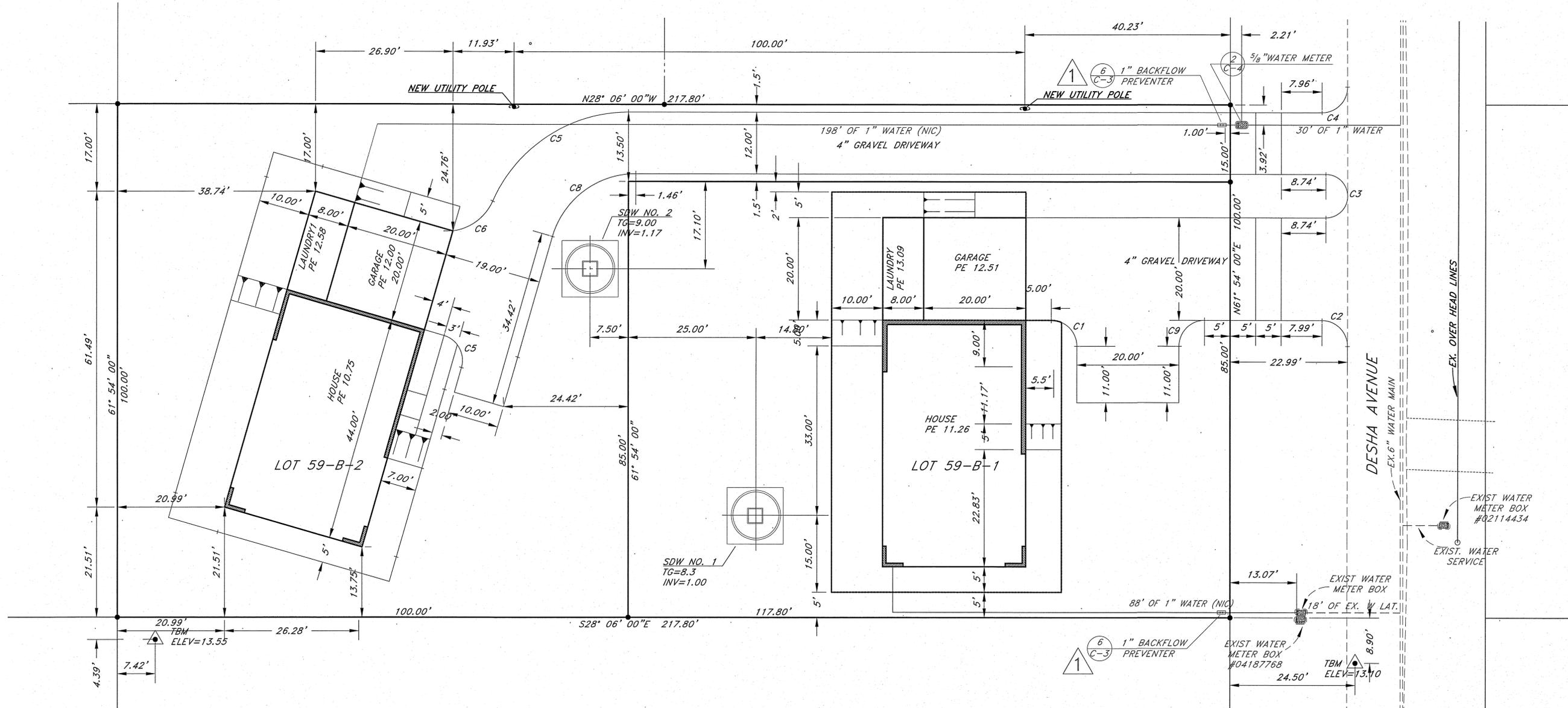
Project Title: **KEAUKAHA TRACT 1 IMPROVEMENTS**

Sheet Title: **LOTS 59-B-1 AND 59-B-2 EROSION CONTROL (BMP) PLAN**

DESIGN BY: DRB
DRAWN BY: DRB
CHECKED BY: DL
APPROVED BY: DL
DATE: X
SCALE: AS NOTED
FILE No. W1302.44

DRAWING No. **C-7**

SHEET No. **8** OF **9** SHTS.



Curve Table					
Curve #	Length	Radius	Delta	Chord Direction	Chord Length
C1	7.85	5.00	90.00	N16° 54' 00"E	7.07
C2	7.85	5.00	89.98	N16° 53' 30"E	7.07
C3	13.35	4.25	180.00	N61° 54' 00"E	8.50
C4	7.86	5.00	90.07	S73° 08' 14"E	7.08
C5	33.59	29.00	66.36	N61° 16' 41"W	31.74

Curve Table					
Curve #	Length	Radius	Delta	Chord Direction	Chord Length
C6	10.21	10.00	58.48	S65° 13' 01"E	9.77
C7	7.85	5.00	90.00	N33° 00' 00"E	7.07
C8	21.93	17.00	73.90	N65° 03' 00"W	20.44
C9	7.85	5.00	90.00	N73° 06' 00"W	7.07

NO.	DATE	DWG.	CHK.	REVISIONS
1	4/5/2016	3, 4, 5, & 8	DL	INSTALL BACKFLOW PREVENTER

This work was prepared by me or under my supervision and construction of this project will be under my observation.
Exp. 04-30-16

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Professional Engineer
No. 4004-C
HAWAII

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Project Title: **IMPROVEMENTS FOR KEAUKAHA TRACT 1 LOTS 59-B-1 AND 59-B-2**

Sheet Title: **DIMENSION PLAN**

DESIGN BY: DRB
DRAWN BY: DRB
CHECKED BY: DL
APPROVED BY: DL
DATE: X
SCALE: AS NOTED
FILE No. W1302.44

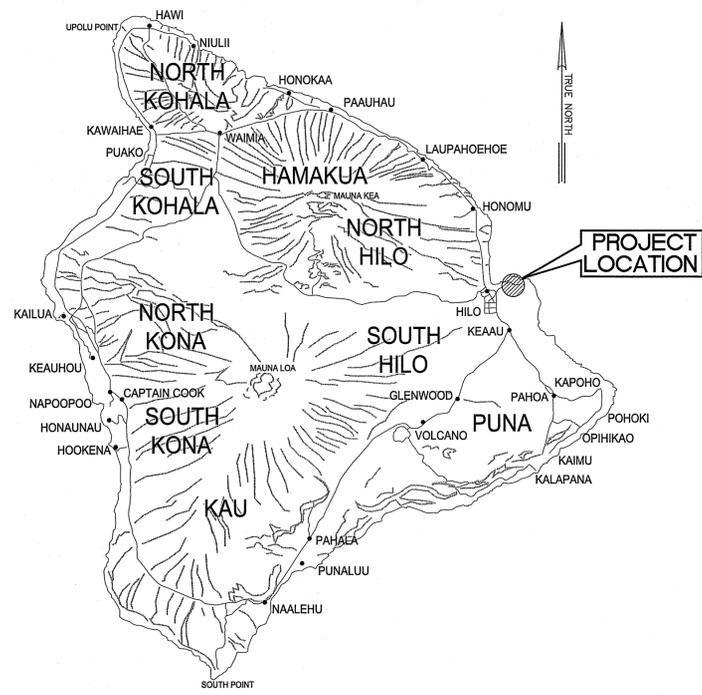
DRAWING No. **C-8**

SHEET No. **9**
OF **9** SHTS.

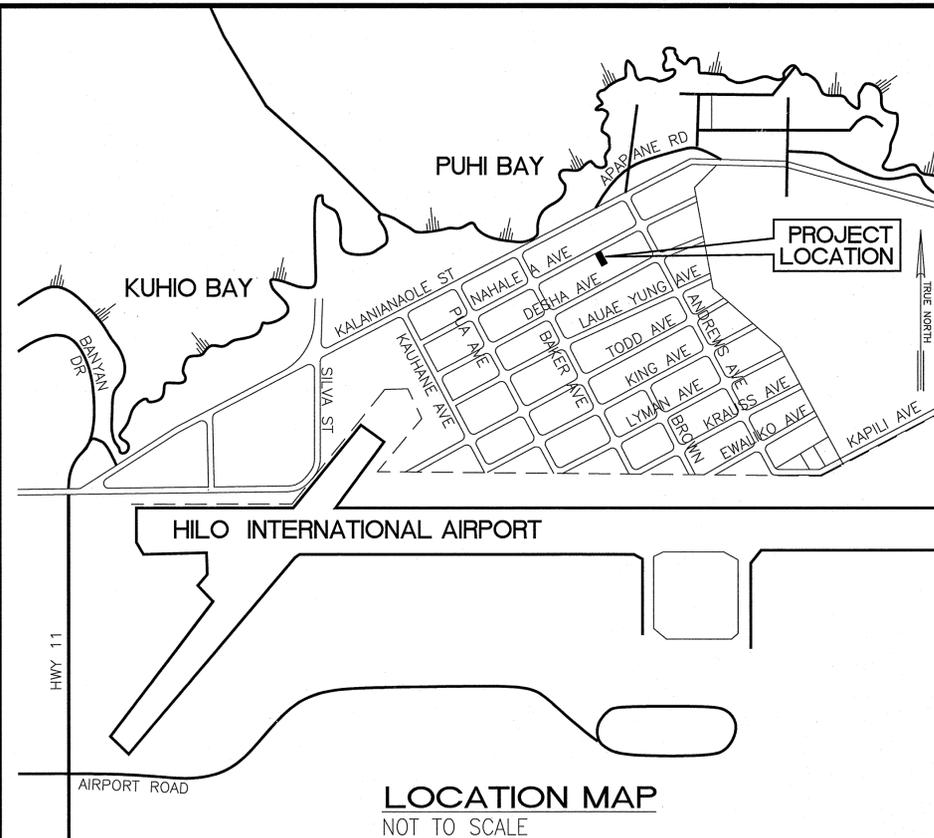
STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS

KEAUKAHA TRACT 1 IMPROVEMENTS
LOT 63-A AND 63-B

WAIAKEA, SOUTH HILO, HAWAII
TAX MAP KEY: (3) 2 - 1 - 021: 100
IFB-16-HHL-014
SUBDIVISION APPLICATION NO: SUB-16-001574



ISLAND OF HAWAII
NOT TO SCALE



LOCATION MAP
NOT TO SCALE

SHEET NO.	DESCRIPTION	DRAWING NO.
1	TITLE SHEET	T-1
2	MISCELLANEOUS NOTES	C-1
3	UTILITY POLE NOTES & SPECIFICATIONS	C-2
4	WATER NOTES & DETAILS	C-3
5	WASTEWATER COLLECTION NOTES	C-4
6	GRADING AND DRAINAGE PLAN	C-5
7	UTILITY PLAN	C-6
8	SHALLOW DRYWELL DETAILS	C-7
9	SANITARY SEWER DETAILS	C-8
10	SANITARY SEWER GRINDER PUMP NOTES & DETAILS	C-9
11	EROSION CONTROL (BMP) PLAN	C-10
12	DIMENSION PLAN	C-11

APPROVED BY:

Wesley R. Sagawa
CHAIRMAN, HAWAIIAN HOMES COMMISSION
STATE OF HAWAII

Volkan D. Ay
MANAGER, CHIEF-ENGINEER, DEPARTMENT OF WATER SUPPLY
COUNTY OF HAWAII

DIRECTOR, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
COUNTY OF HAWAII

DIRECTOR, PLANNING DEPARTMENT
COUNTY OF HAWAII

FOR GRADING PURPOSES ONLY;

DIRECTOR, DEPARTMENT OF PUBLIC WORKS
COUNTY OF HAWAII

1/20/16
DATE:

2/20/16
DATE:

DATE:

DATE:

No.	DATE	DWG. CHK.	REVISIONS

PRINTS TO
DATE

This work was prepared by me or under my supervision and construction of this project shall be in accordance with the provisions of the Hawaii Engineering Law, Chapter 464, Hawaii Revised Statutes.

Wesley R. Sagawa
Wesley R. Sagawa & Associates, Inc.

Volkan D. Ay
No. 4004-C
HAWAII

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Project Title: KEAUKAHA TRACT 1 IMPROVEMENTS LOTS 63-A & 63-B TITLE SHEET

Sheet Title:

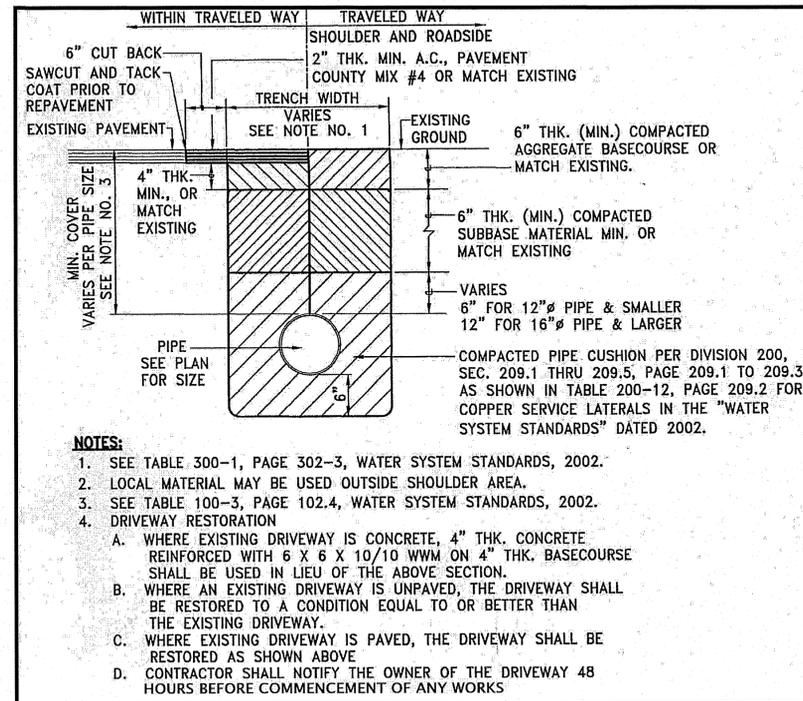
DESIGN BY: DRB
DRAWN BY: DRB
CHECKED BY: DL
APPROVED BY: DL
DATE: NOV. 2015
SCALE: AS NOTED
FILE No. W1406.80

DRAWING No.
T-1

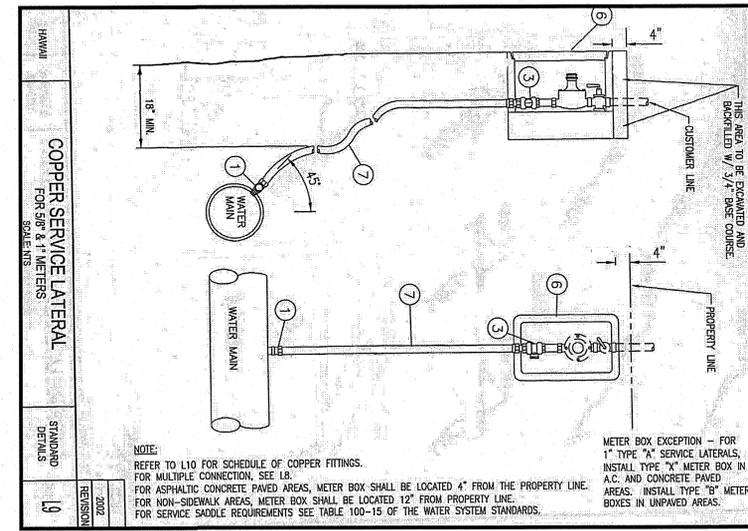
SHEET No.
1
OF 12 SHTS.

WATERLINE NOTES:

- ALL WORK SHALL BE DONE ACCORDING TO THE WATER SYSTEM STANDARDS, STATE OF HAWAII, DATED 2002, AS AMENDED.
- ALL EXISTING WATERLINES, WATERLINE, APPURTENANCES AND OTHER UTILITY LOCATIONS SHOWN ON THE PLANS ARE OBTAINED FROM THE LATEST RELIABLE SOURCES. THE CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY THE EXACT LOCATION OF ALL UTILITIES IN THE FIELD AND SHALL BEAR ALL COSTS FOR DAMAGE DONE DURING THE CONTRACT PERIOD.
- THE CONTRACTOR SHALL INFORM THE D.W.S. ENGINEER 72 HOURS PRIOR TO THE BEGINNING OF ANY WATERLINE WORK AND TWO WEEKS PRIOR TO ANY CONNECTION, CHLORINATION, SHUT-OFF OR RELOCATION WORK.
- ALL CONNECTIONS TO THE WATER SYSTEMS SHALL BE DONE BY THE D.W.S. THE CONTRACTOR SHALL PERFORM ALL EXCAVATION, BACKFILL, ROAD REPAIR, TRAFFIC CONTROL, AND PROVIDE EQUIPMENT AND MATERIALS NECESSARY TO COMPLETE THE CONNECTION.
- THE CONTRACTOR SHALL PAY FOR ALL WORK, EQUIPMENT, AND MATERIAL FURNISHED BY THE D.W.S.
- MINIMUM VERTICAL CLEARANCE BETWEEN WATERLINES AND OTHER UTILITIES SHALL BE 12-INCHES PROVIDED THE OTHER UTILITY IS CONCRETE JACKETED, AND 18-INCHES IF NO CONCRETE JACKETS ARE USED. IN ALL APPLICABLE INSTANCES, THE WATERLINES SHALL BE AT A GRADE HIGHER THAN OTHER UTILITIES. UTILIZE PERPENDICULAR CROSSINGS WHERE PRACTICABLE FOR WATERLINES, CENTER FULL PIPE LENGTHS AT UTILITY CROSSINGS WHENEVER POSSIBLE.
- MINIMUM HORIZONTAL CLEARANCE BETWEEN WATERLINES AND OTHER UTILITIES SHALL BE 8-FEET (CLEAR SPACE - NOT CENTERLINE TO CENTERLINE) FOR ROAD RIGHT-OF-WAYS OF 50 FEET OR LESS, AND 10-FEET FOR ROAD RIGHT-OF-WAYS OF MORE THAN 50 FEET.
- ALL WATER SYSTEM PIPELINES, 4-INCHES OR LARGER IN DIAMETER, SHALL BE DUCTILE IRON, PUSH ON JOINTS, CLASS 52, AND ALL PIPELINES SMALLER THAN 4-INCHES IN DIAMETER SHALL BE SOFT COPPER, TYPE "K", UNLESS OTHERWISE SPECIFIED.
- PIPE CUSHION FOR COPPER SERVICE LATERALS SHALL BE NO. 4 MANUFACTURED FINE SAND.
- METER BOXES FOR 5/8-INCH METERS PLACED OUTSIDE OF PAYMENT TO BE TYPE "B" PER STD DETAILS M1 & M2. METER BOXES FOR 1-INCH METERS OR FOR 5/8-INCH STD DETAIL M3.
- RELOCATION OF EXISTING METERS SHALL BE DONE UNDER D.W.S. SUPERVISION. RELOCATION OF CUSTOMER SERVICE LINES TO RELOCATED METERS SHALL BE COPPER (TYPE "K") AND DONE BY THE CONTRACTOR. ALL WORK AND MATERIALS SHALL BE PROVIDED BY THE CONTRACTOR AND CONSIDERED INCIDENTAL TO THE RELOCATION WORK. EXISTING METER BOXES DAMAGED BY THE CONTRACTOR SHALL BE REPLACED AT THE CONTRACTOR'S COST. WHEN APPLICABLE, A DIELECTRIC UNION SHALL BE USED TO CONNECT THE COPPER PIPE TO THE CUSTOMER'S GALVANIZED IRON (G.I.) PIPE.
- SOLDER (1/8-INCH DIA.) AND FLUX USED SHALL NOT CONTAIN MORE THAN 0.2% LEAD
- LOTS REQUIRING A DEPARTMENT OF WATER SUPPLY APPROVED BACKFLOW PREVENTION ASSEMBLY SHALL HAVE ONE. IT MUST BE INSTALLED ON PRIVATE PROPERTY IN ACCORDANCE WITH D.W.S. STANDARD DETAIL NO. V9 AND DEPARTMENTAL STAFF MUST APPROVE THE INSTALLATION BEFORE WATER SERVICE CAN BE STARTED.
- WHERE WATER SHUT-OFF OF MORE THAN 3 HOURS BECOMES NECESSARY, THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL PROVIDE A TEMPORARY BY-PASS LINE. THE DWS ENGINEER SHALL DETERMINE THE BY-PASS LINE SIZE. IF NECESSARY, THE DWS ENGINEER MAY REQUIRE A BY-PASS LINE, REGARDLESS OF THE EXPECTED SHUT-OFF PERIOD.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR RECORD DRAWINGS (AS-BUILT DRAWINGS) AND THE LICENSED ENGINEER SHALL CERTIFY THE DRAWINGS AS TO ACCURACY AND SUBMIT THE DRAWINGS AND AS-BUILT TRACINGS TO THE DWS.
- AFTER JANUARY 4, 2014, ALL BRASS PRODUCTS MUST CONFORM TO NSF STANDARD 61 AND NSF STANDARD 372 OF THE SDWA, AND BE CERTIFIED AS "LEAD-FREE" BY THE MANUFACTURER. "LEAD-FREE" IS DEFINED AS THE ALLOWABLE LEAD CONTENT OF NOT MORE THAN 0.25% IN THE WETTED SURFACE. CERTIFICATION FROM THE MANUFACTURER MUST BE SUBMITTED TO THE DEPARTMENT OF WATER SUPPLY FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION. ANY BRASS PRODUCT INSTALLED WITHOUT APPROVAL MUST BE REMOVED AT NO EXPENSE TO THE DEPARTMENT.
- BOXED WATERLINE DETAILS BELOW TAKEN FROM THE WATER SYSTEM STANDARDS.



1 TYPICAL TRENCH AND PAVEMENT C-3 REPAIR SECTION FOR WATERLINES NOT TO SCALE



2 TYPICAL SINGLE SERVICE LATERAL C-3 NOT TO SCALE

SERVICE LATERAL AND CONNECTION MATERIAL SCHEDULE											
SERVICE CONNECTION MATERIAL											
SERVICE LATERAL MATERIAL											
TYPE	SIZE	SIZE	QNT.								
A	1-1/2"	1-1/2"	1	1-1/2"	1	1-1/2"	1	1-1/2"	1	1-1/2"	1
B	1-1/2"	1-1/2"	1	1-1/2"	1	1-1/2"	1	1-1/2"	1	1-1/2"	1
C	1-1/2"	1-1/2"	1	1-1/2"	1	1-1/2"	1	1-1/2"	1	1-1/2"	1
D	1-1/2"	1-1/2"	1	1-1/2"	1	1-1/2"	1	1-1/2"	1	1-1/2"	1
E	1-1/2"	1-1/2"	1	1-1/2"	1	1-1/2"	1	1-1/2"	1	1-1/2"	1

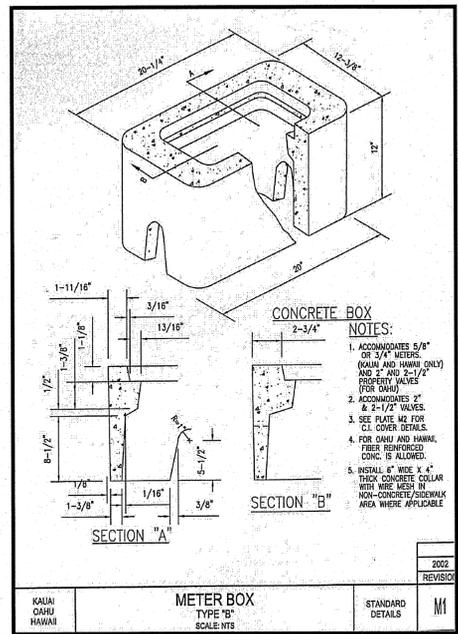
(a) BRONZE BALL CORP.
INLET: ANWA TAPER
OUTLET: PACK JOINT, "M.P.T. W/ADAPTER (C.P.T. & PACK JOINT)" OR "M.P.T. W/ BRASS UNION (FPT X C)"

(b) BRONZE BALL CURB STOP
INLET-OUTLET: PACK JOINTS OR FPT W/ADAPTER (C X MPT) OR
OUTLET: FPT W/ADAPTER (C X MPT)

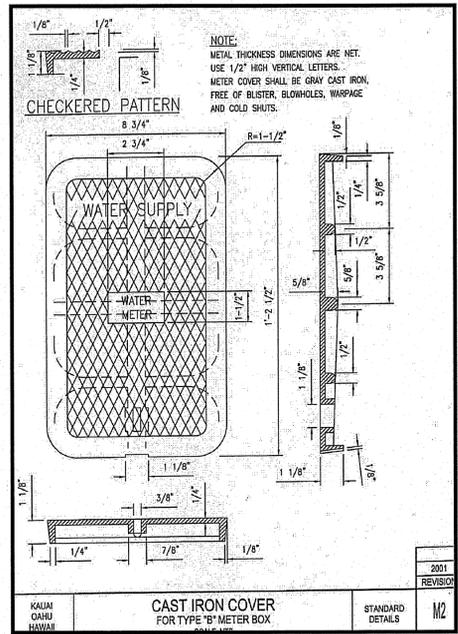
(c) BRONZE BALL CURB STOP
INLET: PACK JOINT
OUTLET: METER COUPLING OR FPT W/BRASS BUSHING OR
OUTLET: FPT W/ADAPTER (C X MPT) OR
OUTLET: FPT W/BRASS BUSHING AND METER COUPLING.

(d) CUSTOMER VALVE: BALL VALVE WITH HAND LEVER
INLET: METER COUPLING OR FLANGE, PACK JOINT, OR FPT.
OUTLET: FPT OR PACK JOINT.

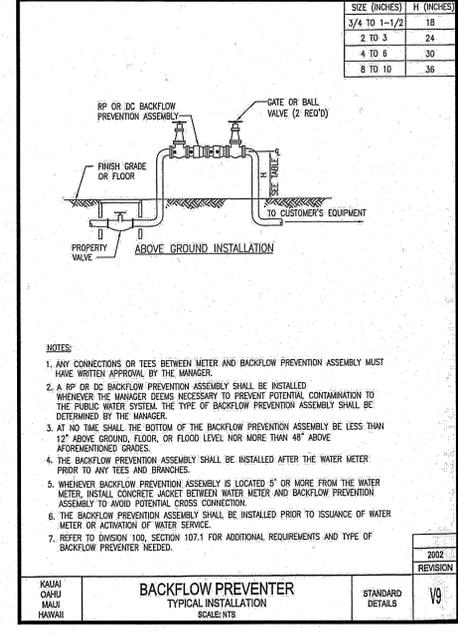
3 SCHEDULE OF COPPER FITTINGS C-3 NOT TO SCALE



4 METER BOX TYPE "B" C-3 NOT TO SCALE



5 CAST IRON COVER FOR TYPE "B" METER BOX NOT TO SCALE



6 BACKFLOW PREVENTER C-3 NOT TO SCALE

Project Title: KEAUKAHA TRACT 1 IMPROVEMENTS LOT 63-A & 63-B WATER NOTES & DETAILS

Sheet Title: WATER NOTES & DETAILS

DESIGN BY: DRB
DRAWN BY: DRB
CHECKED BY: DL
APPROVED BY: DL
DATE: NOV. 2015
SCALE: AS NOTED
FILE No. W1406.80

DRAWING No. C-3

SHEET No. 4 OF 12 SHTS.

REVISIONS

NO.	DATE	DWG.	CHK.	REVISIONS
1	4/5/2016	3, 5, 6, & 11	DL	INSTALL BACKFLOW PREVENTER

PRINTS TO

This work was prepared by me or under my supervision and construction of this project shall be under my observation.
Wesley R. Segawa & Associates, Inc.
K. W. LEE
LICENSED PROFESSIONAL ENGINEER
No. 4004-C
HAWAII

WASTEWATER COLLECTION SYSTEM NOTES:

1. THE GENERAL REQUIREMENTS AND COVENANTS OF THE DEPARTMENT OF PUBLIC WORKS, COUNTY OF HAWAII (JULY 1972); THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (SEPTEMBER 1986), THE STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION, DEPARTMENT OF PUBLIC WORKS, COUNTY OF HAWAII, SEPTEMBER 1984 AND THE COUNTY OF HAWAII, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT, WASTEWATER DIVISION (WWD) STANDARD DETAILS (WW-1 THRU WW-9) SHALL BE APPLICABLE AND INCORPORATED HEREIN UNLESS OTHERWISE NOTED.
2. THE CONTRACTOR SHALL PROCURE ALL PERMITS AND LICENSES, PAY ALL CHARGES AND FEES AND GIVE ALL NOTICES NECESSARY AND INCIDENTAL TO THE DULY AND LAWFUL PROSECUTION OF THE WORK.
3. THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, AND EQUIPMENT REQUIRED FOR THE COMPLETE INSTALLATION OF THE SUBJECT WORK UNLESS SPECIFICALLY WRITTEN OTHERWISE.
4. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PERFORM A CONSTRUCTION PER THE APPROVED PLANS AND SPECIFICATIONS. ANY ADDITIONS, DELETIONS OR CHANGES TO THE WASTEWATER SYSTEM SHALL MEET THE APPROVAL OF THE COUNTY OF HAWAII, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT, WASTEWATER DIVISION.
5. INSPECTIONS SHALL BE REQUIRED FOR ALL WORK WHICH INVOLVES THE WWO'S SEWER MAINS, LATERALS, CLEANOUTS, AND ALL DETECTABLE NEW CONSTRUCTION. CALL THE WASTEWATER DIVISION AT 961-8338 AT LEAST TWO (2) WORKING DAYS IN ADVANCE TO SCHEDULE AN INSPECTION.
 - a. WHEN AND AS OFTEN AS THE WWD DETERMINES THROUGH THEIR INSPECTION PROCEDURES, MATERIAL, EQUIPMENT OR WORKMANSHIP DO NOT MEET THE REQUIREMENTS, THE WWD WILL GIVE WRITTEN NOTICE OF THE NONCOMPLIANCE TO THE CONTRACTOR AND IMMEDIATE CORRECTION OF THE DEFICIENCIES SHALL BE ADDRESSED WITH THE WWD ENGINEER AND/OR THEIR REPRESENTATIVE.
 - b. INSPECTION SHALL BE PERFORMED PRIOR TO BACKFILLING OR COVERING OF THE PIPE AND AFTER ALL PLUMBING WORK, IN ACCORDANCE WITH THE PLUMBING PERMIT, IS COMPLETE WITHIN THE PARCEL.
6. SEWER WORK SHALL BE SCHEDULED SUCH THAT WORK SHALL NOT BE PERFORMED ON SATURDAYS, SUNDAYS OR COUNTY OF HAWAII HOLIDAYS. IF SUCH WORK DICTATES PERFORMANCE ON THESE NON-WORKING DAYS AND AFTER NORMAL HOURS (3:30 PM TO 7:00 AM) OF OPERATION THEN, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PAYMENT OF OVERTIME CHARGES TO THE WWD.
7. ALL EXISTING WASTEWATER LINE(S), WHETHER OR NOT SHOWN ON THE PLANS, IF DAMAGED DURING CONSTRUCTION, SHALL BE REPAIRED BY THE CONTRACTOR AND THE CONTRACTOR SHALL PAY ALL EXPENSES.
8. BYPASSING OR SPILLING OF SEWAGE TO THE GROUND, DRAINAGE SYSTEM OR STATE WATERS IS PROHIBITED. THE CONTRACTOR SHALL PAY PENALTIES, INCLUDING LEGAL FEES AND OTHER COSTS RELATED TO THE BYPASS AND/OR SPILL.
9. THE CONTRACTOR SHALL BE OR HAVE IN PERSON ON THE JOB SITE OR BE REPRESENTED BY A RESPONSIBLE AGENT WITH AUTHORITY TO ACT FOR THE CONTRACTOR IN CONNECTION WITH THIS PROJECT AT ALL TIMES.
10. AT ALL TIMES DURING THE WORK, KEEP THE PREMISES CLEAN AND ORDERLY, AND UPON COMPLETION OF THE WORK, REPAIR ALL DAMAGE CAUSED BY EQUIPMENT AND LEAVE THE PROJECT FREE OF RUBBISH AND EXCESS MATERIALS OF ANY KIND.

SEWER SYSTEM REQUIREMENTS

1. SEWER MAIN PIPE AND FITTINGS:
 - a. ALL SEWER PIPE AND FITTINGS SHALL BE PVC SDR-26 BELL AND SPIGOT OR AN APPROVED EQUAL.
 - b. LAYING OF PIPE SHALL COMMENCE AT THE LOWEST POINT, THE BELL END FACING UPSTREAM. PIPE SHALL BE FITTED TOGETHER AND MATCHED SO THAT WHEN LAID IT WILL FORM A UNIFORM AND SMOOTH INVERT.
 - c. THE INTERIOR OF THE SEWER PIPE SHALL BE CLEARED OF ALL DEBRIS AND FOREIGN MATERIALS AS THE WORK PROGRESSES. EXPOSED ENDS OF SEWER PIPE SHALL BE CLOSED WITH TEMPORARY COVERS TO PREVENT EARTH AND DEBRIS FROM ENTERING THE PIPE BEFORE LEAVING THE WORKPLACE FOR THE NIGHT.
 - d. BECAUSE OF THE NATURE OF PLASTIC PIPE AND FITTINGS, THE CONTRACTOR IS CAUTIONED TO EXERCISE CARE IN HANDLING, LOADING, UNLOADING, AND STORING TO AVOID DAMAGE.
2. TRENCH, PIPE BEDDING, AND BACKFILL:
 - a. TRENCHES SHALL BE PROPERLY BACKFILLED AND COMPACTED AS SHOWN ON THE APPROVED PLAN.
 - b. PIPE BEDDING SHALL BE CLASS B *** AGGREGATE BASE COURSE PLACED WITHIN TRENCH NOT LESS THAN 6 INCHES BUT NOT MORE THAN 8 INCHES IN COMPACTED THICKNESS, SHOULD PROVIDE UNIFORM AND ADEQUATE LONGITUDINAL SUPPORT UNDER THE PIPE, AND SHALL BE COMPACTED TO 95 PERCENT MAXIMUM DRY DENSITY UNLESS OTHERWISE NOTED ON PLANS.
 - c. PIPE CUSHION SHALL BE CLASS B *** AGGREGATE BASE COURSE PROPERLY PLACED A MINIMUM OF 12" COMPACTED THICKNESS OVER THE TOP OF THE PIPE TO PROVIDE ADEQUATE SIDE SUPPORT WHILE AVOIDING VERTICAL AND LATERAL DISPLACEMENT.
 - d. CONTROLLED LOW-STRENGTH MATERIAL (CLSM) SHALL BE USED AS THE FINAL TRENCH BACKFILL UNLESS OTHERWISE NOTED ON THE PLAN OR APPROVED BY THE WWD ENGINEER.
 - e. COMPACTION TESTING FOR BASE COURSE MATERIAL SHALL BE PERFORMED BY AN INDEPENDENT TESTING AND QUALITY CONTROL LABORATORY. COMPACTION TESTING SHALL BE A MINIMUM OF ONE (1) TEST PER 150 LINEAL FEET OR A FRACTION THEREOF. THE ENGINEER RESERVES THE RIGHT TO INCREASE THE FREQUENCY OF COMPACTION TO MATCH FIELD CONDITIONS. TEST RESULTS SHALL BE SUBMITTED TO THE WWD ENGINEER FOR AS PART OF THE FINAL ACCEPTANCE.

3. SEWER LATERAL PIPE AND FITTINGS:

- a. NEW SEWER LATERALS AND CLEANOUT SHALL BE 6" DIAMETER, PVC SDR26 PIPE AND FITTINGS.
- b. SEWER CLEANOUTS SHALL BE LOCATED IN THE COUNTY RIGHT-OF-WAY WITHIN ONE FOOT OF THE PROPERTY LINE. THE CLEANOUT SHALL BE EASILY ACCESSIBLE (I.E. NOT BE BURIED OR LOCATED UNDER OR CLOSE TO ROCK WALLS, FENCES OR OTHER OBSTRUCTIONS).
- c. THE CLEANOUT SHALL BE PROVIDED A BRASS COUNTERSUNK CAP AND AN 18"X18"X18" CLASS B CONCRETE COLLAR REINFORCED WITH 1#3 REINFORCEMENT STEEL LOOP. REFER WWD STANDARD DETAIL WW-2. IN THE EVENT THAT THE CLEANOUT IS INSTALLED WITHIN A SIDEWALK OR SIMILAR AREA HAVING CONCRETE SURFACES, THE CONCRETE COLLAR IS NOT REQUIRED.
- d. IF A CLEANOUT IS SUBJECT TO VEHICULAR OR ABNORMAL LOADING IT SHALL BE PROVIDED A TRAFFIC RATED FRAME/COVER (MODEL SBF 1246W, MANUFACTURED BY SOUTH BAY FOUNDRY OR APPROVED EQUAL) AND SHALL BE INSTALLED AS PER MANUFACTURER'S RECOMMENDATIONS. REFER WWD STANDARD DETAIL WW-4.
- e. SEWER LATERAL CONNECTIONS TO AN EXISTING SEWER MAIN MAY BE MADE WITH A WYE CONFIGURED FLEXIBLE SADDLE ROTATED 45 DEGREES ABOVE THE SEWER SPRING LINE. SEWER LATERAL SADDLE CONNECTIONS AND CORED SEWER MAIN ENTRY SHALL PROVIDE A SMOOTH AND UNOBSTRUCTED FLOW AREA. THE SEWER SADDLE SHALL COMPLETELY OVERLAY THE CORE ENTRY AREA ON THE MAIN SEWER PIPE. THE SADDLE SHALL BE SECURED TO THE MAIN SEWER PIPE WITH STAINLESS STEEL STRAPS AND JACKETED WITH CLASS 8 REINFORCED CONCRETE. THE REINFORCED JACKET SHALL COMPLETELY ENCASE THE EXISTING MAIN SEWER PIPE, BE A MINIMUM OF 6" THICK, AND EXTEND A MINIMUM OF 6" BEYOND THE SEWER SADDLE.

4. SEWER LINE ACCEPTANCE TEST:

- a. ALL NEWLY INSTALLED SEWER MAINS AND LATERALS ARE SUBJECT TO LEAKAGE AND CCTV INSPECTION PRIOR TO FINAL ACCEPTANCE AS DIRECTED BY THE WWD.
- b. LEAKAGE TESTING SHALL BE ACCOMPLISHED WITH SECTION 21.3 D OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, SEPTEMBER 1986. ALL COSTS FOR TESTING SHALL BE BORNE BY THE CONTRACTOR.
- c. AN INITIAL CCTV INSPECTION WILL BE PERFORMED BY THE COUNTY AT NO COST TO THE CONTRACTOR SUBJECT TO THE CONDITIONS BELOW.
 - i. THE CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN, FROM THE WWD, A COPY OF THE SEWER LINE ACCEPTANCE TEST CRITERIA PRIOR TO REQUESTING OR SCHEDULING A CCTV INSPECTION.
 - ii. THE CONTRACTOR SHALL ASSIST THE COUNTY IN THE PERFORMANCE OF THE CCTV INSPECTION, SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL REQUIREMENTS, AND SHALL BE RESPONSIBLE FOR CLEANING OF THE LINES TO REMOVE ALL DEBRIS PRIOR TO CCTV INSPECTION. IN THE EVENT THAT PIPES ARE FOUND TO HAVE BEEN INADEQUATELY CLEANED, THE COUNTY WILL TERMINATE THE INSPECTION AND ANY SUBSEQUENT INSPECTIONS WILL BE SUBJECT TO CHARGES TO THE CONTRACTOR.
 - iii. THE CONTRACTOR SHALL HAVE A SUPERVISORY REPRESENTATIVE PRESENT DURING PERFORMANCE OF THE CCTV INSPECTION.
 - iv. IF THE CCTV INSPECTION REVEALS CONDITIONS SUCH AS SAGS, DENTS, OUT-OF-ROUND, ETC. THEN, MANDREL TESTING IN ACCORDANCE WITH SECTION 21.3 E OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, SEPTEMBER 1986 WILL BE REQUIRED AT WHICH THE COST WILL BE BORNE BY THE CONTRACTOR.
 - v. CCTV INSPECTIONS WILL BE RECORDED IN VHS OR CDROM FORMAT. IN THE EVENT THAT THE CONTRACTOR REQUESTS A COPY OF THE CCTV INSPECTION, THE CONTRACTOR WILL BE CHARGED FOR THE COPY AT A RATE OF \$25.00.

5. FINAL PROJECT SUBMITTALS:

- a. UPON FINAL PROJECT ACCEPTANCE SUBMIT TO WWD ONE (1) SET OF "AS-BUILT" PLANS ON VELLUM AND TWO (2) COPIED SETS AND ONE (1) SET OF ELECTRONIC DRAWINGS IN AUTOCAD 2009 VERSION AND (1) SET OF ELECTRONIC DRAWINGS IN ADOBE PDF FORMAT.
- b. IT IS MANDATORY THAT THE "AS-BUILT" PLANS SHOW CORRECTLY IDENTIFIED PROPERTY TMK NUMBERS, LOCATION OF SEWER MANHOLES, LATERALS, CLEANOUTS AND ALL OTHER MAJOR COMPONENTS OF THE WASTEWATER COLLECTION SYSTEM INCLUDING INVERT ELEVATIONS AT ALL SEWER MANHOLES, LATERAL CONNECTIONS AT THE MAIN, LATERAL ELEVATIONS AT THE CLEANOUT. SUBMITTED DOCUMENTATION SHALL BE CERTIFIED BY A LICENSED PROFESSIONAL LAND SURVEYOR ATTESTING TO THE LOCATION AND ELEVATIONS OF ALL MAJOR COMPONENTS OF THE WASTEWATER COLLECTION SYSTEM AS SHOWN ON THE AS-BUILT PLANS.

CLEARING AND GRUBBING NOTES

1. CLEAR ALL SURFACE AREAS AND GRUB AREAS BELOW NATURAL GROUND SURFACES FOR THE DESIGNATED LOTS. ENSURE THAT ALL BMP MEASURES ARE IN PLACE BEFORE CLEARING AND GRUBBING STARTS.
2. CLEARING IS DEFINED AS REMOVING AND DISPOSING OF ALL UNWANTED SURFACE MATERIALS, SUCH AS TREES, BRUSH, GRASS, WEEDS, DOWNED TREES, AND OTHER MATERIAL.
3. GRUBBING IS DEFINED AS REMOVING AND DISPOSING OF ALL UNWANTED VEGETATION MATTER FROM UNDERGROUND, SUCH AS STUMPS, ROOTS, BURIED LOGS, AND OTHER MATERIAL.
4. DEBRIS IS DEFINED AS USABLE OR UNWANTED MATERIAL PRODUCED BY CLEARING AND GRUBBING.
5. CLEARING AND GRUBBING ALSO INCLUDES HERBICIDE MAINTENANCE. HERBICIDE MAINTENANCE INCLUDES APPLICATION OF WEED CONTROLLING CHEMICALS, APPLIED ONCE PER MONTH FREQUENCIES FOR ONE YEAR (12 MONTHS) DURATION. THE SELECTED HERBICIDE IS ROUND UP (GLYPHOSATE) OR AN EQUAL HERBICIDE CHEMICAL, TO BE APPROVED BY DHHL. THE HERBICIDE DOSAGE USED IN ALL APPLICATIONS SHALL BE FOR DESTROYING BROADLEAF WEEDS.
6. LIMITS - CLEARING AND GRUBBING WORK IS INTENDED TO BE WITHIN THE HOUSE LOT PARCEL. ANY WORK OUTSIDE OF THE HOUSE LOT PARCEL REQUIRES PRIOR APPROVAL BY DHHL AND THE AFFECTED ADJACENT LEASE HOLDER.
7. REMOVAL AND DISPOSAL OF MATERIAL - REMOVE MATERIAL AND DEBRIS, AND DISPOSE OF AT AN AUTHORIZED DISPOSAL SITE. OBTAIN WRITTEN AUTHORIZATION FROM PROPERTY OWNERS AND GOVERNMENT AUTHORITIES FOR DISPOSAL LOCATIONS OUTSIDE ROAD-RIGHT-OF-WAY LIMITS. LEAVE AREAS WITH NEAT AND FINISHED APPEARANCE.

DIVISION CHIEF, WASTEWATER DIVISION
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
COUNTY OF HAWAII

DATE

NO.	DATE	DWG. CHK.	REVISIONS

This work was prepared by me or under my supervision and construction of this project. I am a duly licensed Professional Engineer, No. 4004-C, State of Hawaii.

Wesley R. Segawa & Associates, Inc.
Wesley R. Segawa, P.E.
No. 4004-C
HAWAII

WRSA
Wesley R. Segawa and Associates, Inc.
Civil & Structural Engineers
Committed to Quality Performance & Value

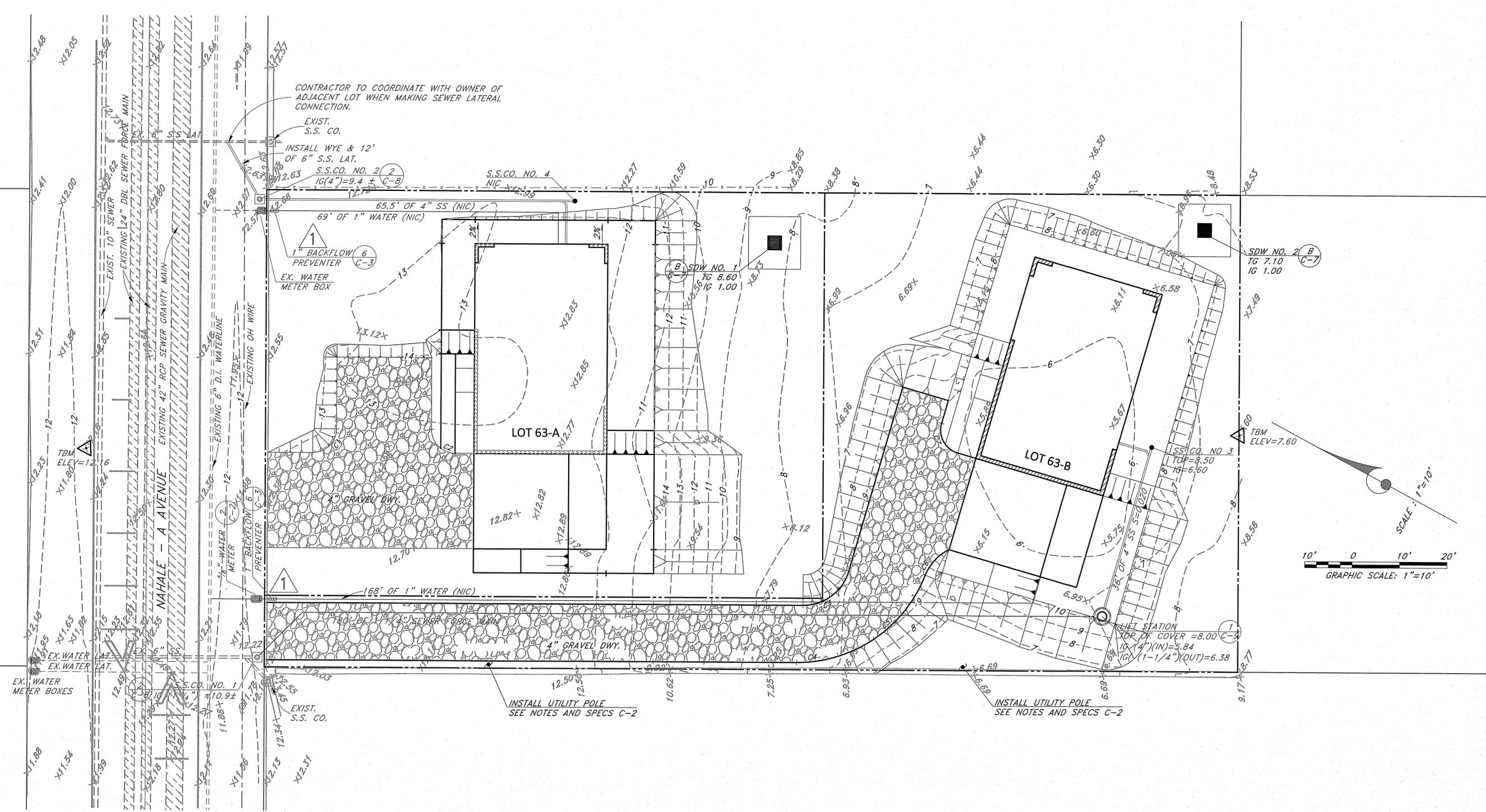
101 Silva Street, Suite 201 Hilo, Hawaii 96720-4755
Telephone: (808) 935-4677 Fax: (808) 935-2070

Project Title: **KEAUKAHA TRACT 1 IMPROVEMENTS**

Sheet Title: **LOTS 63-A & 63-B W.W.C. SYSTEM NOTES**

DESIGN BY: DRB
DRAWN BY: DRB
CHECKED BY: DL
APPROVED BY: DL
DATE: NOV. 2015
SCALE: AS NOTED
FILE No. W1406.80

DRAWING No.
C-4
SHEET No.
5
OF **12** SHTS.



CONTRACTOR TO COORDINATE WITH OWNER OF ADJACENT LOT WHEN MAKING SEWER LATERAL CONNECTION.

EXIST. S.S. CO.

INSTALL WYE & 12' OF 6" S.S. LAT.

S.S. CO. NO. 2 2 IG(4")=9.4 ± C-8

S.S. CO. NO. 4 NIC

65.5' OF 4" SS (NIC)

69' OF 1" WATER (NIC)

BACKFLOW PREVENTER

EX. WATER METER BOX

65.5' OF 4" SS (NIC)

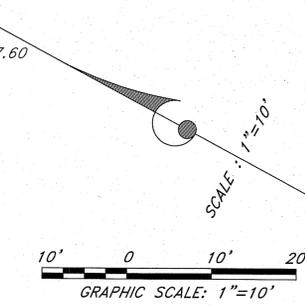
69' OF 1" WATER (NIC)

BACKFLOW PREVENTER

EX. WATER METER BOX

INSTALL UTILITY POLE SEE NOTES AND SPECS C-2

Curve Table					
Curve #	Length	Radius	Delta	Chord Direction	Chord Length
C1	7.85	5.00	90.00	S73° 06' 00"E	7.07
C2	7.85	5.00	90.00	S16° 54' 00"W	7.07
C3	12.90	10.00	73.90	S65° 03' 00"E	12.02
C4	17.38	29.00	34.34	S45° 16' 21"E	17.12
C5	17.38	29.00	34.34	S79° 37' 03"E	17.12
C6	7.51	10.00	43.05	N75° 16' 01"W	7.34
C7	7.85	5.00	90.00	S33° 00' 00"W	7.07



NO.	DATE	DWG.	CHK.	REVISIONS
1	4/9/2016	3, 5, 6, & 11	DL	INSTALL BACKFLOW PREVENTER
2				
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19				
20				

This work was prepared by me or under my supervision and construction of this project was made under my observation. Exp. 04-30-16

Wesley R. Segawa & Associates, Inc.
Wesley R. Segawa, P.E.
No. 4004-C
HAWAII

DEMS
K. W. LEE
LICENSED PROFESSIONAL ENGINEER
No. 4004-C
HAWAII

WRPSA
Wesley R. Segawa and Associates, Inc.
Committed to Quality Performance & Value

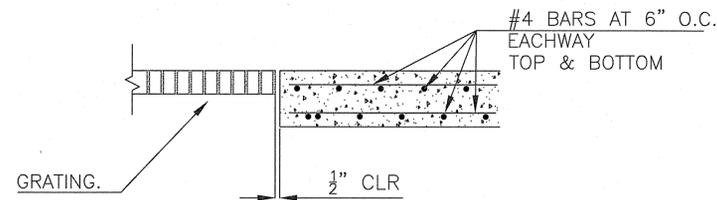
Civil & Structural Engineers
101 Silva Street, Suite 201, Hilo, HI 96720-4755
Telephone: (808) 935-4677 Fax: (808) 935-2070

Project Title: **KEAUKAHA TRACT 1 IMPROVEMENTS LOT 63-A & 63-B UTILITY PLAN**

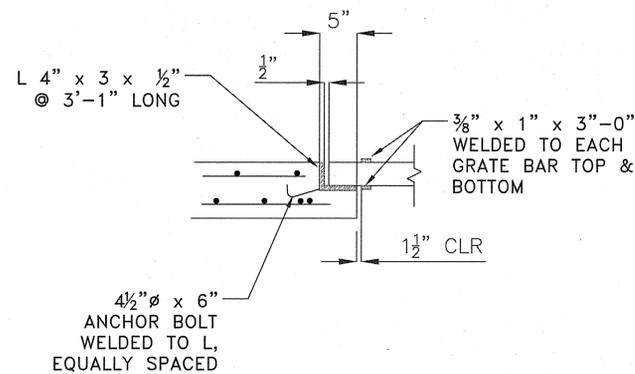
Sheet Title: **UTILITY PLAN**

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CHECKED BY: DL
APPROVED BY: DL
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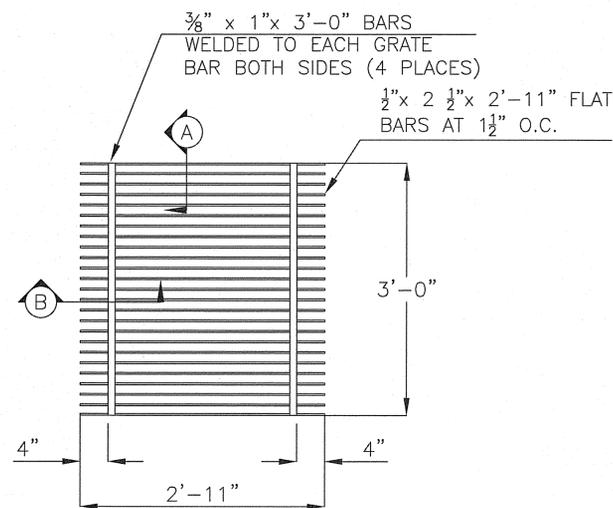
DRAWING No. **C-6**
SHEET No. **7**
OF **12** SHTS.



SECTION A-A
NOT TO SCALE



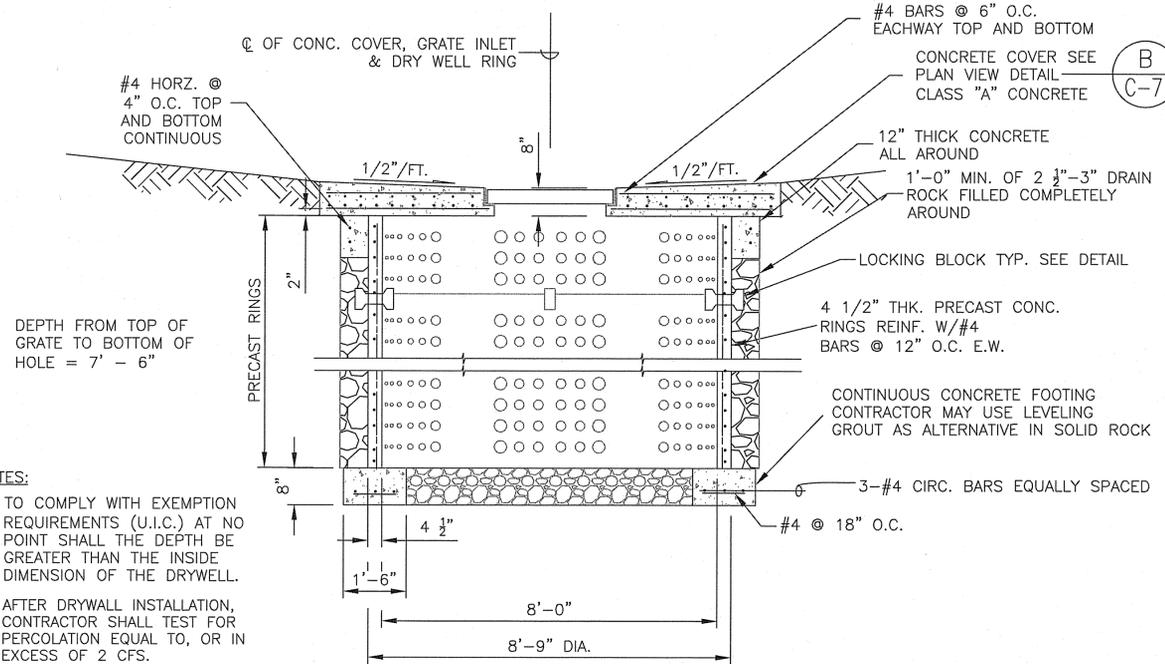
SECTION B-B
NOT TO SCALE



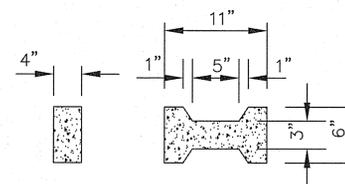
GRATING
NOT TO SCALE

(A) DRYWELL GRATE DETAIL
C-7 NOT TO SCALE

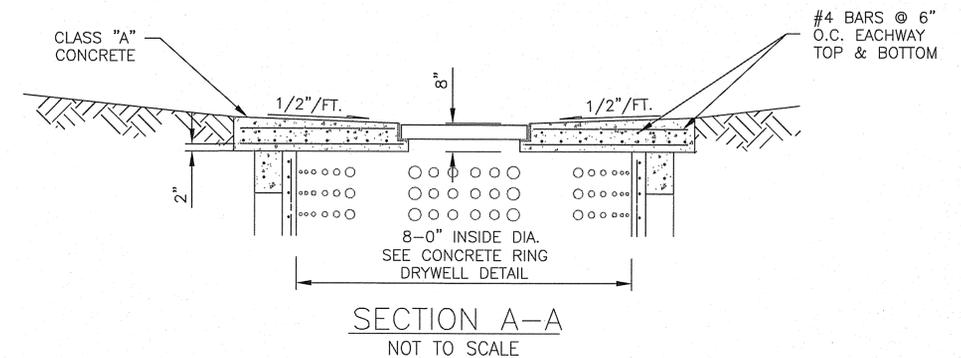
- NOTES:
1. TO COMPLY WITH EXEMPTION REQUIREMENTS (U.I.C.) AT NO POINT SHALL THE DEPTH BE GREATER THAN THE INSIDE DIMENSION OF THE DRYWELL.
 2. AFTER DRYWELL INSTALLATION, CONTRACTOR SHALL TEST FOR PERCOLATION EQUAL TO, OR IN EXCESS OF 2 CFS.



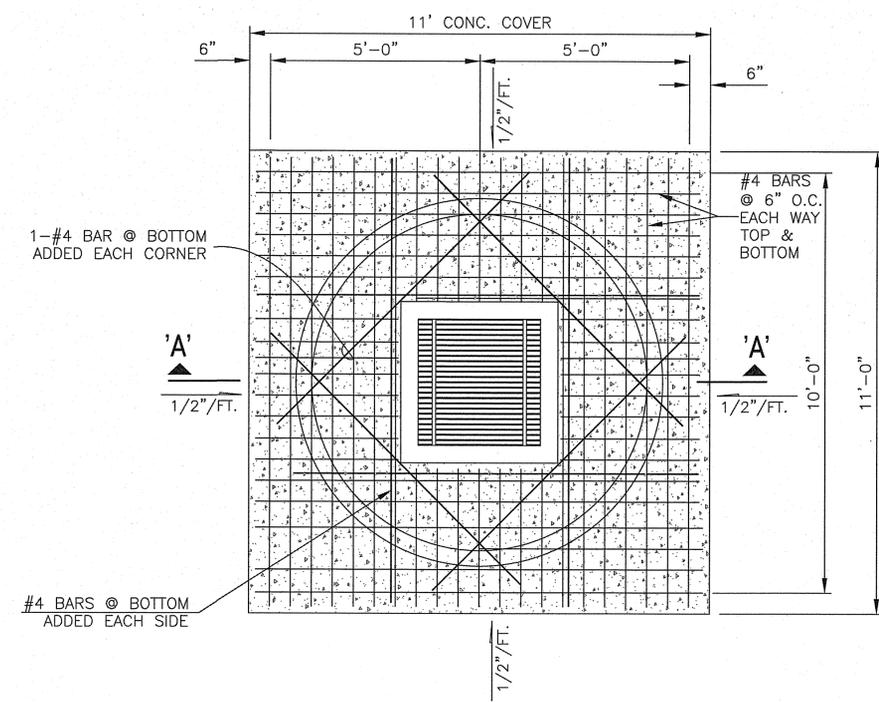
CONCRETE RING DRYWELL
NOT TO SCALE



TYPICAL RING CROSS SECTION
NOT TO SCALE



SECTION A-A
NOT TO SCALE



PLAN
NOT TO SCALE

(B) CONCRETE DRYWELL DETAIL
C-7 NOT TO SCALE

NO.	DATE	BY	CHK.	REVISIONS

This work was prepared by me or under my supervision and construction of this work shall be under my observation.
Exp. 04-30-16

Wesley F. Segawa & Associates, Inc.
Professional Engineer
No. 4004-C
HAWAII

WRSA
Civil & Structural Engineers
Wesley F. Segawa and Associates, Inc.
Committed to Quality Performance & Value

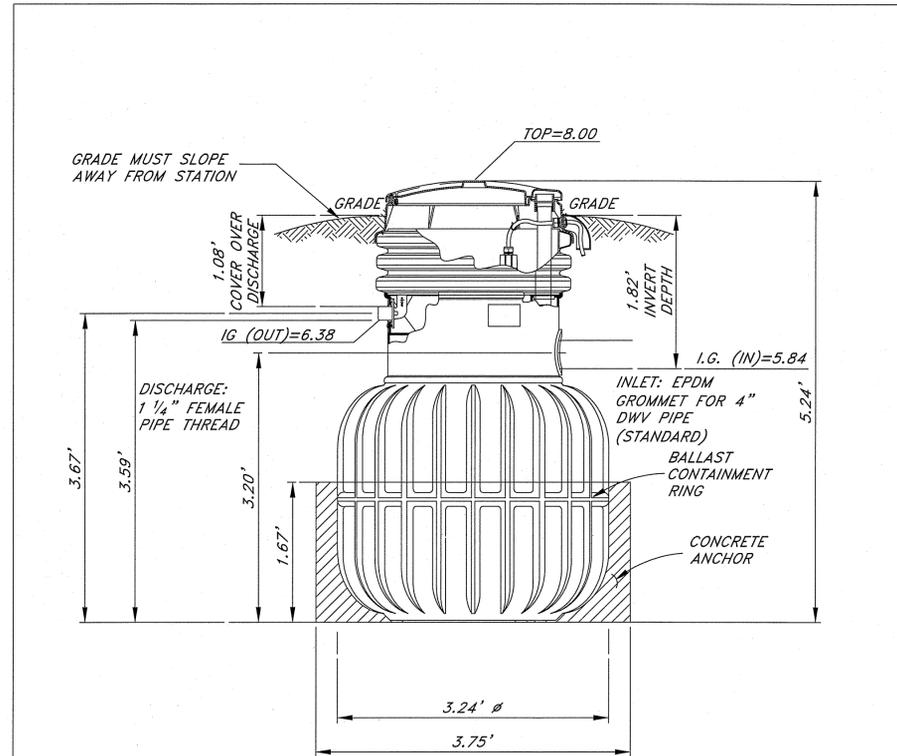
101 Silva Street, Suite 201 Hilo, Hawaii 96720-4755
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Project Title: **KEAUKAHA TRACT 1 IMPROVEMENTS**
Sheet Title: **LOTS 63-A & 63-B SHALLOW DRYWELL DETAILS**

DESIGN BY: DRB
DRAWN BY: DRB
CHECKED BY: DL
APPROVED BY: DL
DATE: NOV. 2015
SCALE: AS NOTED
FILE No. W1406.80

DRAWING No.
C-7

SHEET No.
8
OF 12 SHTS.



DH151-63 (HARD WIRED
LEVEL CONTROLS)
OR APPROVED EQUAL

PRODUCT INFORMATION:

ENVIRONMENT ONE CORPORATION
2773 BALLTOWN ROAD
NISKAYUNA, NEW YORK 12309-1090

(518) 346 6161
(518) 346 6188 (FAX)

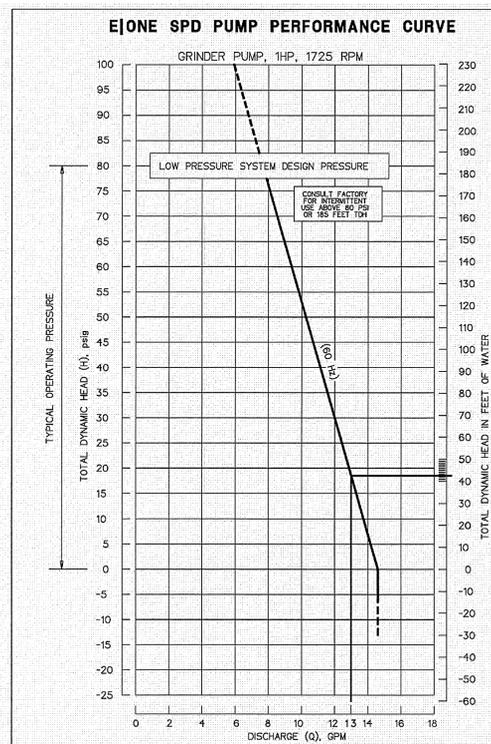
WWW.EONE.COM



MODEL DH151-63

NA0051P04

1 SANITARY SEWER FORCE MAIN
C-9 ENVIRONMENT ONE GRINDER PUMP
OR APPROVED EQUAL



NOTES:

MINIMUM REQUIREMENT FOR MDL. DH151-63 OR APPROVED EQUAL.

- MANUFACTURE TO FURNISH A SET OF SHOP DRAWINGS DETAILING THE EQUIPMENT TO BE FURNISHED INCLUDING DIMENSIONAL DATA AND MATERIALS OF CONSTRUCTIONS.
- THE PUMP IS CAPABLE OF DELIVERING 15 GPM AGAINST A RATED TOTAL DYNAMIC HEAD OF 0 FEET (0 PSIG), 11 GPM AGAINST A RATED TOTAL DYNAMIC HEAD OF 92 FEET (40 PSIG) AND 7.8 GPM AGAINST A RATED TOTAL DYNAMIC HEAD OF 185 FEET (PSIG).
- THE PUMP IS A CUSTOM DESIGNED, INTERGAL, VERTICAL ROTOR, MOTOR DRIVEN, AND SOLID HANDLING PUMP OF PROGRESSING CAVITY TYPE WITH A SINGLE MECHANICAL SEAL.
- THE GRINDER SHALL BE CAPABLE OF REDUCING ALL COMPONENTS IN NORMAL DOMESTIC SEWAGE.
- ELECTRIC MOTOR IS A 1 HP, 1725 RPM, 240 VOLT 60 HERTZ, 1 PHASE, CAPACITOR START, BALL BEARING, AIR-COOLED INDUCTION TYPE WITH CLASS F INSTALLATION, LOW STARTING CURRENT NOT TO EXCEED 30 AMPERES AND HIGH STARTING TORQUE OF 8.4 FOOT POUNDS.
- TANK AND INTEGRAL ACCESSWAY (MODEL DH 151-63 150 GALLON SIMPLEX) HIGH DENSITY POLYETHYLENE CONSTRUCTION.
 - THE COVER SHALL BE HIGH DENSITY POLYETHYLENE, GREEN IN COLOR WITH A LOAD RATING OF 150 LBS PER SQUARE FOOT.
 - ALL DISCHARGE PIPING SHALL BE CONSTRUCTED OF 304 STAINLESS STEEL.THE DISCHARGE SHALL TERMINATE OUTSIDE THE ACCESSWAY BULKHEAD WITH A STAINLESS STEEL, 1 -1/4" FEMALE NPT FITTING.
- CORE UNIT: THE GRINDER PUMP STATION SHALL HAVE A CARTRIDGE TYPE, EASILY REMOVABLE CORE ASSEMBLY CONSISTING OF PUMP, MOTOR, GRINDER, ALL MOTOR CONTROLS, CHECK VALVE, ANTI-SIPHON VALVE, LEVEL CONTROLS, ELECTRICAL QUICK DISCONNECT AND WIRING.
- ALARM PANEL IS A NEMA 4X, UL-LISTED SUITABLE FOR WALL OR POLE MOUNTING. THE NEMA 4X ENCLOSURE SHALL BE MANUFACTURED OF THERMOPLASTIC POLYESTER TO ENSURE CORROSION RESISTANCE.
- SENTRY SIMPLEX PROTECT PLUS CONSIST OF:
 - HIGH/LOW VOLTAGE MONITORING WITH TROUBLE INDICATION.
 - HIGH/LOW WATAGE MONITORING WITH TROUBLE INDICATION.
 - EXTENDED RUN TIME MONITORING WITH TROUBLE INDICATION.
 - CYCLE. EVENT COUNTER.
 - RUN TIME COUNTER (HOUR METER)
 - RUN TIME LIMIT.
 - POWER-UP DELAY.
 - ALARM DELAY.
 - SYSTEM SELF-TEST DIAGNOSTIC.
 - USER - SELECTABLE ALARM LATCH.
 - USER - SELECTABLE PROTECT MODE DISABLE.
 - USER - SELECTABLE BUZZER TIMER.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR HANDLING GROUND WATER TO PROVIDE FIRM, DRY SUBGRADE FOR STRUCTURES, AND SHALL GUARD AGAINST FLOTATION OR OTHER DAMAGE RESULTING FROM GENERAL WATER OR FLOODING.
- THE ELECTRICAL ENCLOSURE SHALL BE FURNISHED, INSTALLED AND WIRED TO THE GRINDER PUMP STATION BY THE CONTRACTOR.
- ALL EQUIPMENT AND MATERIALS NECESSARY TO PERFORM TESTING SHALL BE THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR.

NO.	DATE	BY	CHK.	REVISIONS

This work was prepared by me or under my supervision and construction of this project shall be in accordance with the specifications and drawings. I am a duly Licensed Professional Engineer in the State of Hawaii. My License No. is 4004-C. My Signature is [Signature] and my Seal is [Seal].
Wesley R. Segawa & Associates, Inc.



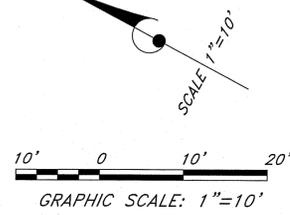
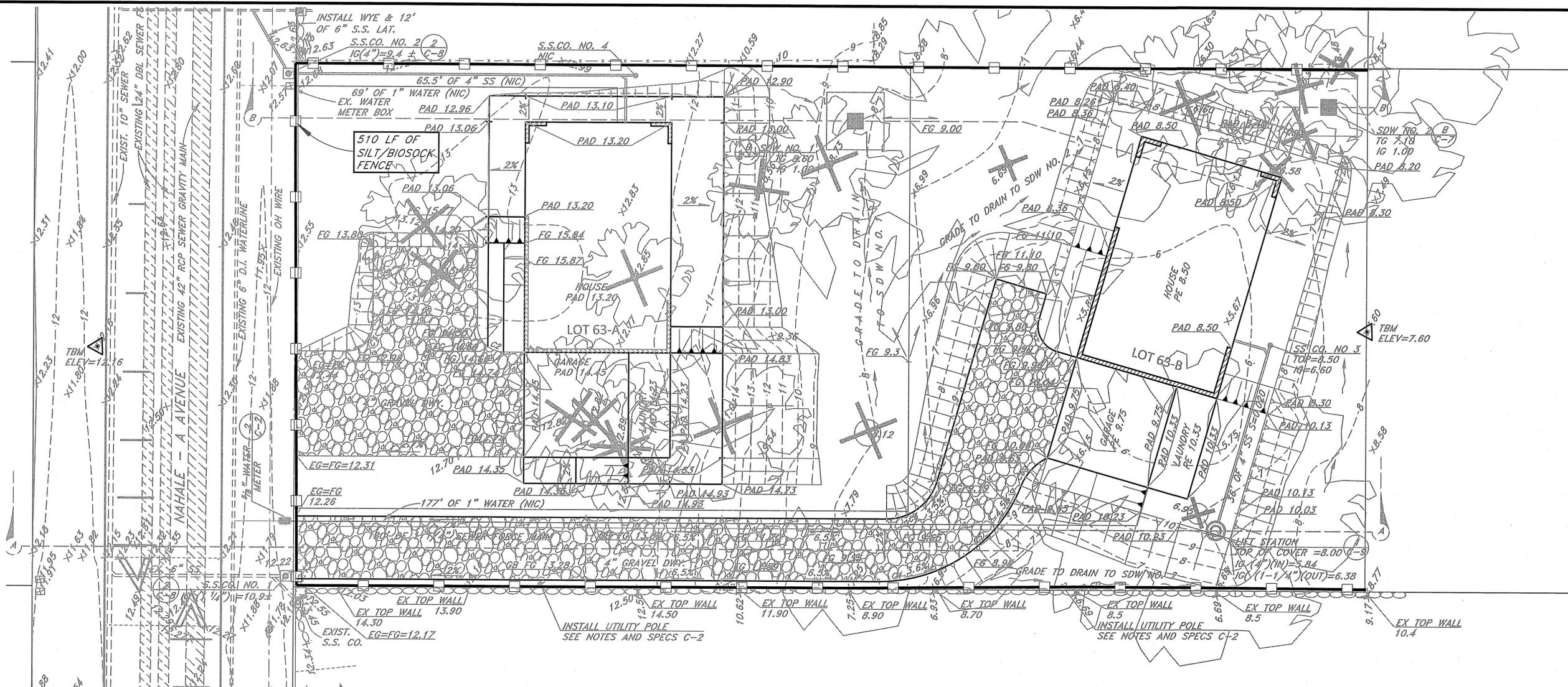
WRSA
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Telephone: (808) 935-4677 Fax: (808) 935-5070

Project Title: KEAUKAHA TRACT 1 IMPROVEMENTS
LOTS 63-A & 63-B
SANITARY SEWER FORCE MAIN NOTES & DETAILS
Sheet Title:

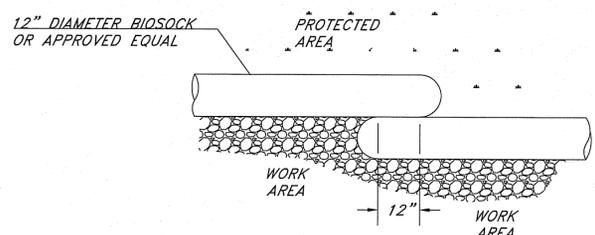
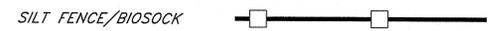
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DRAWN BY: DRB
CHECKED BY: DL
APPROVED BY: DL
DATE: NOV. 2015
SCALE: AS NOTED
FILE No. W1406.80

DRAWING No.
C-9

SHEET No.
10
OF 12 SHTS.

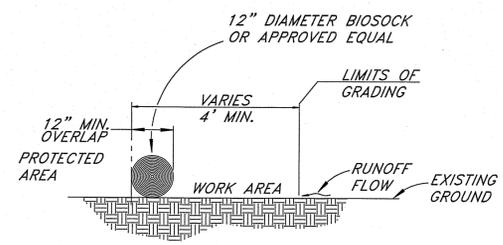


LEGEND:

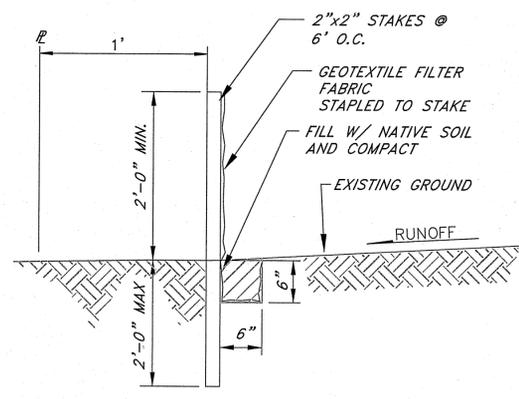


PLAN VIEW

BIOSOCK DETAIL (12" DIA)
NOT TO SCALE



ELEVATION VIEW



SILT FENCE NOTES:

BIOSOCK MAYBE USED IN LIEU OF SILT FENCE.

THE CONTRACTOR SHALL INSTALL SILT FENCES OR BIO-SOCK PRIOR TO CONSTRUCTION.

ALL BEST MANAGEMENT PRACTICES (BMP'S) SHALL NOT BE REMOVED UNTIL ALL PERMANENT EROSION CONTROL MEASURES ARE IN PLACE, AND ESTABLISHED.

AT THE END OF GRADING OPERATIONS, EXISTING CB'S AND DMH'S SURROUNDING THE PROJECT SITE SHALL BE INSPECTED AND ANY ACCUMULATED SEDIMENT AND DEBRIS FOUND IN THE DRAIN STRUCTURES SHALL BE REMOVED. FLUSHING INTO THE CB'S AND DMH'S ARE PROHIBITED.

SILT FENCE DETAIL
NO SCALE

EROSION CONTROL NOTES:

1. THE CONTRACTOR SHALL REFER TO THE RULES RELATING TO SOILS EROSION STANDARDS AND GUIDELINES, APRIL 1999, BY THE CITY AND COUNTY OF HONOLULU DEPARTMENT OF PLANNING AND PERMITTING FOR BEST MANAGEMENT PRACTICES.
2. THE CONTRACTOR SHALL STABILIZE THE CONSTRUCTION SITE AT ALL POINTS OF EGRESS AND INGRESS WITH A 12" WIDE X 20' LONG X 8" DEEP SECTION OF NO. 2 CRUSHED ROCK.
3. STOCKPILES SHALL NOT BE LOCATED IN DRAINAGE WAYS OR OTHER AREAS OF CONCENTRATED FLOWS. SEDIMENT TRAPPING DEVICES SUCH AS FENCES, TRAPS, BASINS OR BARRIERS SHALL BE USED AROUND THE BASE OF ALL STOCKPILES.
4. DUST CONTROL SHOULD BE APPLIED TO REDUCE DUST EMISSIONS. THE CONTRACTOR, AT THEIR OWN EXPENSE, SHALL KEEP THE PROJECT AREA AND SURROUNDING AREA FREE FROM DUST NUISANCE. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL STANDARDS CONTAINED IN HAWAII ADMINISTRATIVE RULES: CHAPTER 11-60, "AIR POLLUTION CONTROL".
5. SURFACE FLOW FROM ABOVE AN EXPOSED SLOPE SHALL NOT BE ALLOWED TO FLOW OVER THE SLOPE WITHOUT PROTECTION. SLOPE PROTECTION SHALL BE USED ON AREAS WITH SLOPES GREATER THAN 50% AND ON AREAS OF MODERATE SLOPES THAT ARE PRIME TO EROSION.
6. ALL STORM DRAIN INLETS ON SITE, AND THOSE OFFSITE WHICH MAY RECEIVE RUNOFF FROM THE SITE SHALL USE AN INLET PROTECTION DEVICE.
7. TEMPORARY STABILIZATION IS NOT REQUIRED WHEN THE DISTURBED AREA WILL BE WORKED WITHIN A 14 DAY PERIOD. STABILIZATION IS REQUIRED FOR DISTURBED AREAS AT FINAL GRADE AND FOR THOSE AREAS THAT WILL NOT BE WORKED WITHIN A 14 DAY PERIOD.
8. ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED PRIOR TO REMOVING EROSION AND SEDIMENT MEASURES. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED. TRAPPED SEDIMENT AND AREAS OF DISTURBED SOIL WHICH RESULT FROM THE REMOVAL OF THE TEMPORARY MEASURES SHALL BE IMMEDIATELY PERMANENTLY STABILIZED.

NO.	DATE	BY	REVISIONS

This work was prepared by me or under my direct supervision and this project will be under my observation.
Exp. 04-30-16

Wong & Associates, Inc.
Wesley R. Segawa & Associates, Inc.

DEMIS K. W. LEE
LICENSED PROFESSIONAL ENGINEER
No. 4004-C
HAWAII

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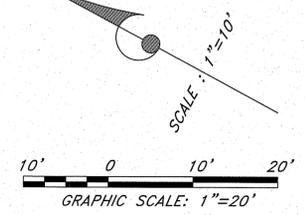
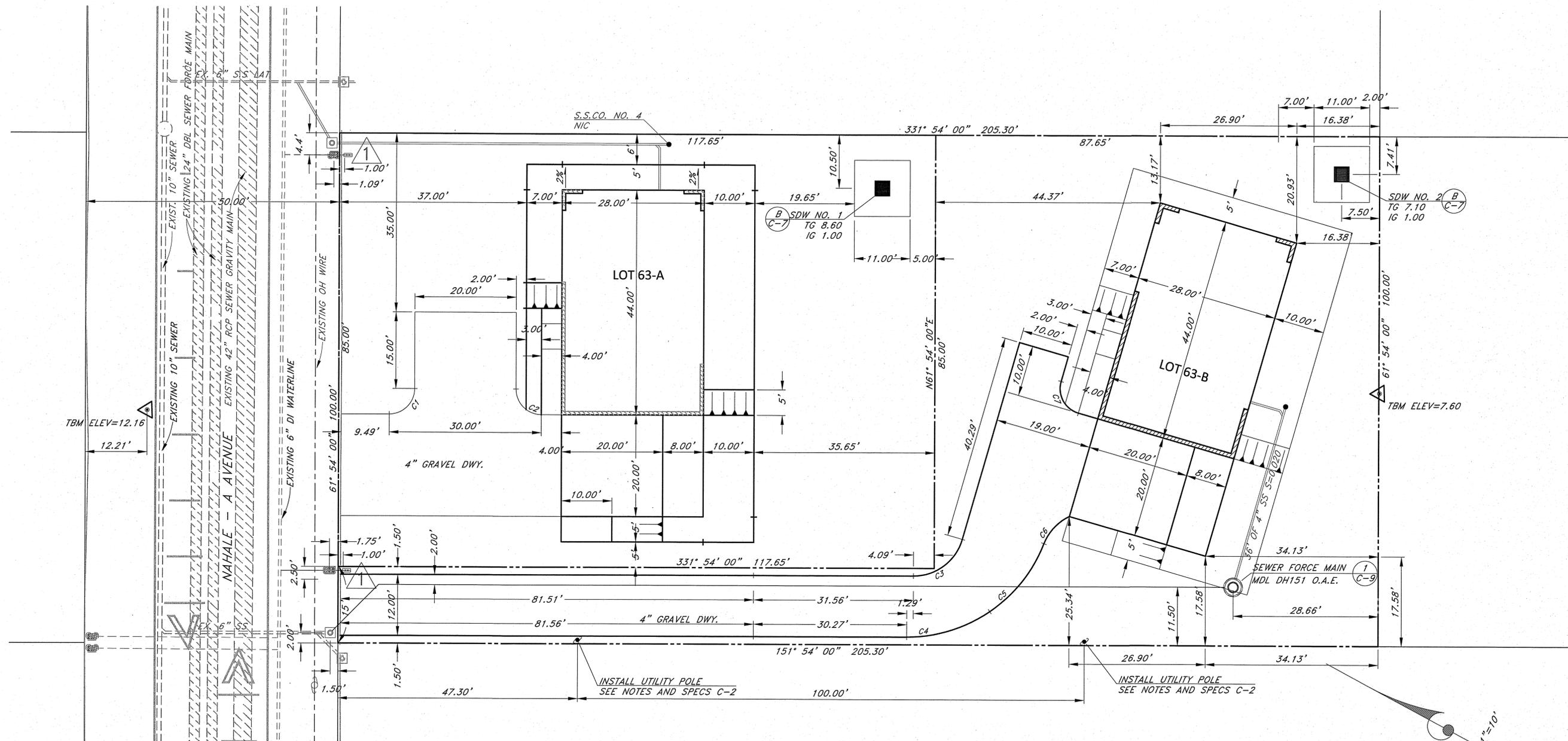
Project Title: **KEAUKAHA TRACT 1 IMPROVEMENTS LOTS 63-A & 63-B**

Sheet Title: **EROSION CONTROL (BMP) PLAN**

DRAWN BY: DRB
CHECKED BY: DL
DATE: NOV. 2015
SCALE: AS NOTED
FILE NO. W1406.80

DRAWING No. **C-10**

SHEET No. **11** OF **12** SHTS.



Curve Table

Curve #	Length	Radius	Delta	Chord Direction	Chord Length
C1	7.85	5.00	90.00	S73° 06' 00"E	7.07
C2	7.85	5.00	90.00	S16° 54' 00"W	7.07
C3	12.90	10.00	73.90	S65° 03' 00"E	12.02
C4	17.38	29.00	34.34	S45° 16' 21"E	17.12
C5	17.38	29.00	34.34	S79° 37' 03"E	17.12
C6	7.51	10.00	43.05	N75° 16' 01"W	7.34
C7	7.85	5.00	90.00	S33° 00' 00"W	7.07

No.	DATE	BY	CHK.	REVISIONS
1	4/5/2016	3, 5, 6, & 11	DL	INSTALL BACKFLOW PREVENTER
2				
3				
4				

This work was prepared by me or under my supervision and construction of this work shall be under my observation.
Exp. 04-30-16

Dennis K. W. Lee
 Professional Engineer
 No. 4804-C
 HAWAII

Wesley R. Segawa & Associates, Inc.
 Wesley R. Segawa

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Project Title: **KEAUKAHA TRACT 1 IMPROVEMENTS LOT 63-A & 63-B DIMENSION PLAN**
 Sheet Title:

DESIGN BY:	DRB
DRAWN BY:	DRB
CHECKED BY:	DL
APPROVED BY:	DL
DATE:	NOV. 2015
SCALE:	AS NOTED
FILE No.	W1406.80

DRAWING No. **C-11**

SHEET No. **12** OF **12** SHTS.

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS

KEAUKAHA TRACT 1 IMPROVEMENTS

LOTS 131-A-1, 131-A-2 & 131-A-3

WAIAKEA, SOUTH HILO, HAWAII

TAX MAP KEY: (3) 2 - 1 - 021: 010

IFB-16-HHL-014

SUBDIVISION APPLICATION NO: SUB-15-001463

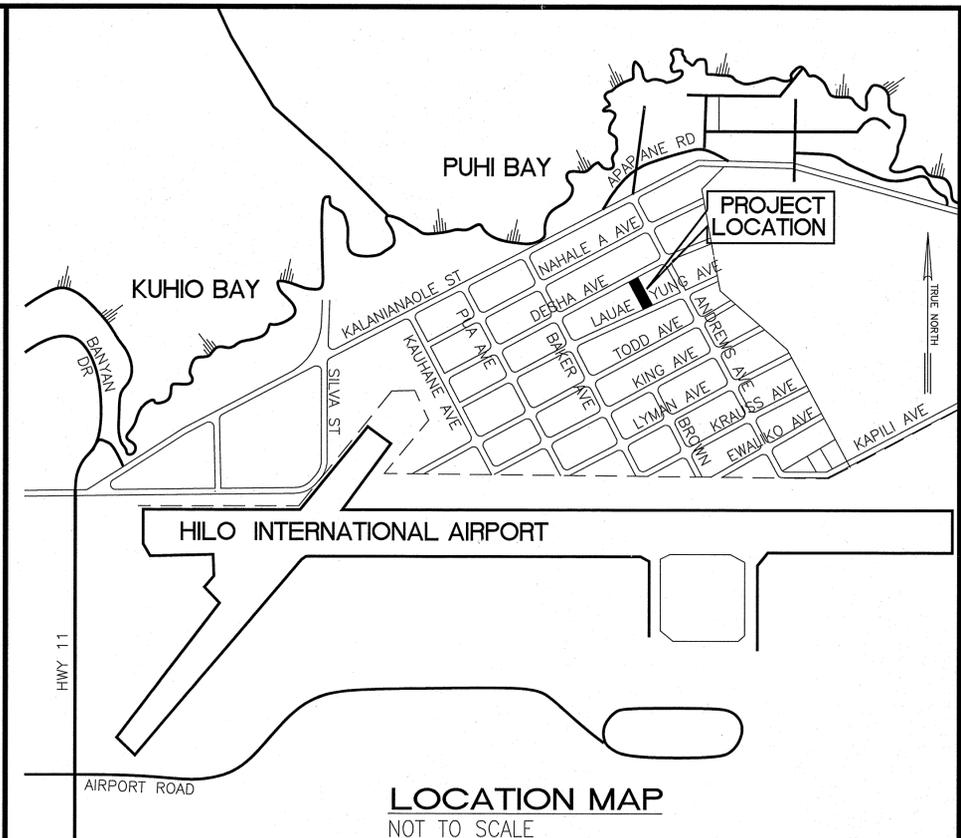
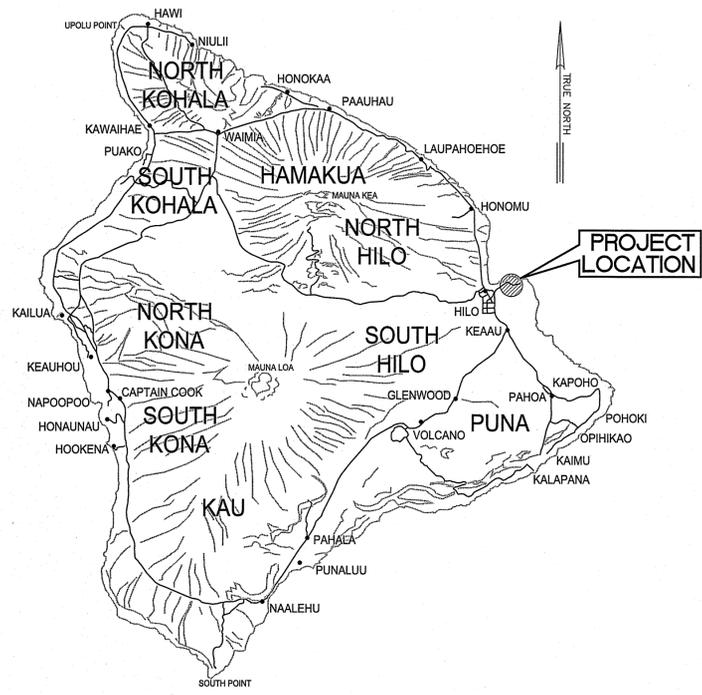
No.	DATE								

This work was prepared by me or under my supervision and construction of this project shall be in accordance with the provisions of the Hawaii Engineering Law, Chapter 464-30-16.

Wesley F. Sogawa & Associates, Inc.
Professional Engineer
No. 4004-C
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SHEET NO.	DESCRIPTION	DRAWING NO.
1	TITLE SHEET	T-1
2	MISCELLANEOUS NOTES	C-1
3	UTILITY POLE NOTES & SPECIFICATIONS	C-2
4	WATER NOTES	C-3
5	WASTEWATER COLLECTION NOTES	C-4
6	GRADING PLAN LOT 131-A-1&2	C-5
7	UTILITY PLAN LOT 131-A-1&2	C-6
8	GRADING PLAN LOT 131-A-3	C-7
9	UTILITY PLAN LOT 131-A-3	C-8
10	SHALLOW DRYWELL DETAILS	C-9
11	SANITARY SEWER DETAILS	C-10
12	EROSION CONTROL (BMP) PLAN	C-11
13	DIMENSION PLAN LOT 131-A-1&2	C-12
14	DIMENSION PLAN LOT 131-A-3	C-13

APPROVED BY:

[Signature]
CHAIRMAN, HAWAIIAN HOMES COMMISSION
STATE OF HAWAII
DATE: 3/20/16

[Signature]
MANAGER, CHIEF-ENGINEER, DEPARTMENT OF WATER SUPPLY
COUNTY OF HAWAII
DATE: 3/20/16

DIRECTOR, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
COUNTY OF HAWAII
DATE: _____

DIRECTOR, PLANNING DEPARTMENT
COUNTY OF HAWAII
DATE: _____

FOR GRADING PURPOSES ONLY;
DATE: _____

DIRECTOR, DEPARTMENT OF PUBLIC WORKS
COUNTY OF HAWAII
DATE: _____

Project Title: KEAUKAHA TRACT 1 IMPROVEMENTS
SHEET TITLE: TITLESHEET

LOTS 131-A-1, 131-A-2 & 131-A-3

DESIGN BY: DRB
DRAWN BY: DRB
CHECKED BY: DL
APPROVED BY: DL
DATE: 2015
SCALE: AS NOTED
FILE No. W1302.43
DRAWING No. T-1
SHEET No. 1 OF 14 SHTS.

UTILITY POLE SPECIFICATIONS AND NOTES:

MAXIMUM-200 AMP SERVICE

IT SHALL BE THE CUSTOMER'S RESPONSIBILITY FOR COMPLIANCE WITH THE NATIONAL ELECTRICAL CODE AND ANY GOVERNING AUTHORITY FOR ALL EQUIPMENT BEYOND THE POINT OF CONNECTION. THE CUSTOMER IS ADVISED TO USE THE SERVICES OF A QUALIFIED ELECTRICIAN TO ASSURE COMPLIANCE WITH ALL CODES AND REGULATIONS.

1. DESCRIPTION:

PERMANENT - MOBILE HOMES, CAMPS, WATER WELLS, AND ANY OTHER CONNECTION NOT CONSIDERED TEMPORARY.

TEMPORARY - CONSTRUCTION, SPECIAL EVENTS, ETC.

2. METER POLES ARE FURNISHED AND INSTALLED BY CUSTOMER. SPECIFICATIONS SHOWN ON THE DRAWING AND DESCRIBED HERE SHALL BE CONSIDERED MINIMUM REQUIREMENTS.

3. **PERMANENT** METER POLES MUST BE 20' (FEET) IN LENGTH AND BE SET 5' (FEET) DEEP. A PERMANENT METER POLE MUST BE A TREATED ROUND POLE WITH A MINIMUM TOP DIAMETER OF 5" (INCHES) OR A TREATED 6" X 6" (INCH) POLE.

IT WILL BE THE RESPONSIBILITY OF THE CUSTOMER TO SECURE THE POLE IN A VERTICAL POSITION. IF THE GROUND IS NOT ADEQUATE TO SUPPORT THE POLE, A GUY WILL HAVE TO BE INSTALLED BY THE CUSTOMER.

4. **TEMPORARY** METER POLES MUST BE 16' (FEET) IN LENGTH AND BE SET 4' (FEET) DEEP. A TEMPORARY METER POLE MUST BE A TREATED POLE WITH A MINIMUM SIZE OF 4" X 6" (INCHES). A TEMPORARY METER POLE WITH A SERVICE LENGTH OF 75' (FEET) OR GREATER MUST BE BRACED AS SHOWN ON THE TEMPORARY METER POLE DRAWING.

5. SERVICE ENTRANCE CONDUIT FURNISHED AND INSTALLED BY CUSTOMER. SERVICE ENTRANCE CONDUIT SHALL BE SCHEDULE 40 PVC OR RIGID CONDUIT, NO EMT, AND SHALL BE SIZED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE OR GOVERNING AUTHORITY. A MINIMUM OF 3 CONDUIT STRAPS ARE REQUIRED, WITH ONE (1) STRAP BEING NO MORE THAN 12" (INCHES) FROM THE WEATHER HEAD.

6. SERVICE ENTRANCE CONDUCTORS FROM THE POINT OF CONNECTION TO METER BASE, TO THE MAIN DISCONNECT, FURNISHED AND INSTALLED BY CUSTOMER.

SERVICE ENTRANCE CONDUCTORS SHALL BE COPPER ONLY AND SIZED ACCORDING TO LOAD, AS REQUIRED BY THE NATIONAL ELECTRIC CODE OR GOVERNING AUTHORITY.

THE NEUTRAL OF THE SERVICE ENTRANCE CONDUCTORS CAN BE TWO (2) SIZES SMALLER THAN THE OTHER CONDUCTORS AND SHALL BE IDENTIFIED WITH GRAY AND WHITE TAPE AT THE WEATHER HEAD AND IN THE METER BASE. AN EXTENSION OF 18" (INCHES) OF SERVICE CONDUCTOR IS REQUIRED AT THE WEATHER HEAD.

7. MAIN DISCONNECT, EITHER A SINGLE MAIN OR A MAIN IN A DISTRIBUTION PANEL, FURNISHED AND INSTALLED BY CUSTOMER. MAIN DISCONNECT SHALL BE SIZED ACCORDING TO LOAD, AS REQUIRED BY THE NATIONAL ELECTRICAL CODE OR GOVERNING AUTHORITY.

MAIN DISCONNECTS AND ANY OTHER ELECTRICAL EQUIPMENT THAT IS EXPOSED TO THE ELEMENTS MUST BE OF A WEATHERPROOF AND WATER TIGHT DESIGN.

8. METER BASE AND K-10 SERVICE HOLDER TO BE FURNISHED AND INSTALLED BY CUSTOMER. THEY MUST CONFORM TO HELCO STANDARDS AND BE COMPATIBLE WITH HELCO METERING. THE METER BASE SHALL BE MOUNTED BETWEEN 5' AND 6' (FEET) ABOVE FINISHED GRADE. THE K10C SHALL BE MOUNTED 6" (INCHES) FROM THE TOP OF THE METER POLE IN THE DIRECTION OF HELCO'S SERVICE CABLE. PRE-DRILLING A PILOT HOLE FOR THE K10C IS RECOMMENDED.

9. A METER BASE GROUND SHALL EXTEND FROM THE NEUTRAL OR GROUNDING LUG IN THE METER BASE TO GROUND ROD. THE METER BASE GROUND SHALL BE A MINIMUM #6, SOFT DRAWN COPPER WIRE. THE METER BASE GROUND WIRE MUST BE CONNECTED IN THE GROUND WIRE LUG, WHERE PROVIDED, AND NOT IN THE SERVICE NEUTRAL LUG. THE METER BASE GROUND WIRE MUST BE STAPLED EVERY SIX (6) INCHES.

10. THE POLE GROUNDING CONDUCTOR SHALL BE A MINIMUM #6, BARE, SOFT DRAWN COPPER WIRE AND EXTEND FROM 6" (INCHES) ABOVE THE TOP OF THE METER POLE TO THE GROUND ROD. IT IS INSTALLED 90 AROUND THE POLE TO THE GROUND ROD. IT IS INSTALLED 90 AROUND THE POLE FROM THE SERVICE ENTRANCE CONDUIT. THE POLE GROUNDING CONDUCTOR MUST BE STAPLED, STARTING FROM THE TOP OF THE POLE AT 2' (FOOT) INTERVALS UNTIL A POINT 6' (FEET) ABOVE THE GROUND IS REACHED, THEN STAPLED EVERY 6" (INCHES).

11. GROUND RODS SHALL BE 5/8" X 8" COPPER WELD OR 1/2" X 8" COPPER. PERMANENT METER POLE GROUND RODS SHALL BE SET 1" (INCH) BELOW FINISHED GRADE.

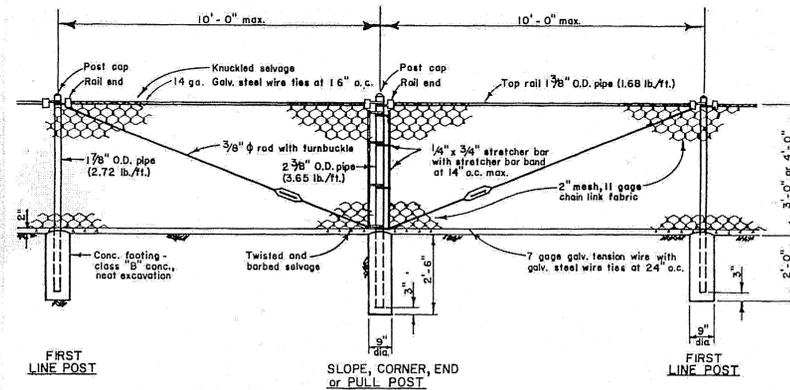
TEMPORARY METER POLE GROUND RODS CAN BE SET 4" (INCHES) ABOVE FINISHED GRADE.

12. ALL UNUSED OR OPEN HOLES IN THE METER BASE, MAIN DISCONNECTOR DISTRIBUTION PANEL SHALL BE PLUGGED WITH WATERTIGHT PLUGS.

13. INSPECTION: IF A GOVERNING AUTHORITY REQUIRES INSPECTION, INSPECTION TAG MUST BE IN PLACE AND MARKED APPROVED BEFORE HELCO WILL CONNECT SERVICE.

NOTES:

1. Posts and braces shall be Schedule 40 (standard weight) pipe. Sizes specified are outside diameter.
2. All fencing material shall be galvanized steel.
3. Top rail couplings shall be located within 6" of line posts.
4. Top of concrete footing shall be crowned to shed water.



1
C-2 4' CHAIN LINK FENCE
SCALE: NONE

No.	DATE	DWG. CHK.	REVISIONS

This work was prepared by me or under my supervision and construction of this work was made under my observation.
Exp. 04-30-16

Wesley R. Segawa
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Project Title: KEAUKAHA TRACT 1 IMPROVEMENTS
LOTS 131-A-1, 131-A-2 & 131-A-3
Sheet Title: MISCELLANEOUS NOTES

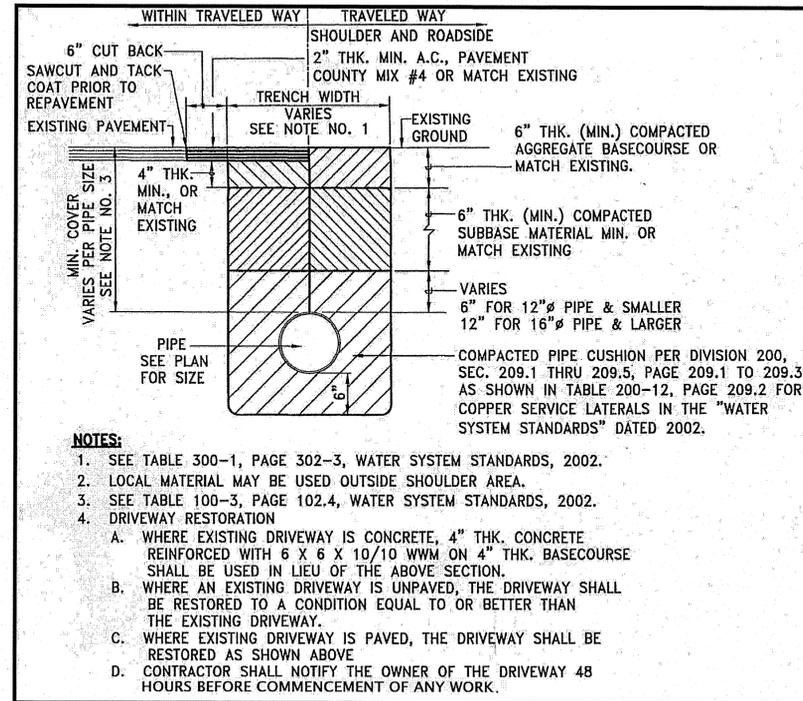
DESIGN BY: DRB
DRAWN BY: DRB
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APPROVED BY: DL
DATE: 2015
SCALE: AS NOTED
FILE No. W1302.43

DRAWING No.
C-2

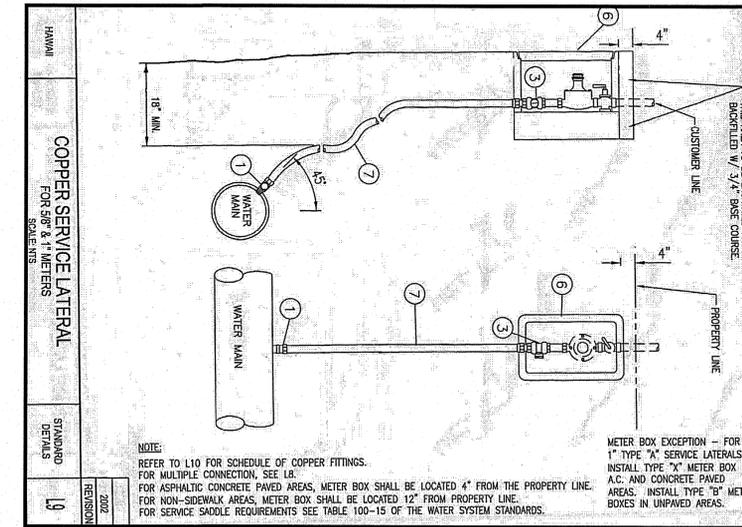
SHEET No.
3
OF **14** SHTS.

WATERLINE NOTES:

- ALL WORK SHALL BE DONE ACCORDING TO THE WATER SYSTEM STANDARDS, STATE OF HAWAII, DATED 2002, AS AMENDED.
- ALL EXISTING WATERLINES, WATERLINE, APPURTENANCES AND OTHER UTILITY LOCATIONS SHOWN ON THE PLANS ARE OBTAINED FROM THE LATEST RELIABLE SOURCES. THE CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY THE EXACT LOCATION OF ALL UTILITIES IN THE FIELD AND SHALL BEAR ALL COSTS FOR DAMAGE DONE DURING THE CONTRACT PERIOD.
- THE CONTRACTOR SHALL INFORM THE D.W.S. ENGINEER 72 HOURS PRIOR TO THE BEGINNING OF ANY WATERLINE WORK AND TWO WEEKS PRIOR TO ANY CONNECTION, CHLORINATION, SHUT-OFF OR RELOCATION WORK.
- ALL CONNECTIONS TO THE WATER SYSTEMS SHALL BE DONE BY THE D.W.S. THE CONTRACTOR SHALL PERFORM ALL EXCAVATION, BACKFILL, ROAD REPAIR, TRAFFIC CONTROL, AND PROVIDE EQUIPMENT AND MATERIALS NECESSARY TO COMPLETE THE CONNECTION.
- THE CONTRACTOR SHALL PAY FOR ALL WORK, EQUIPMENT, AND MATERIAL FURNISHED BY THE D.W.S.
- MINIMUM VERTICAL CLEARANCE BETWEEN WATERLINES AND OTHER UTILITIES SHALL BE 12-INCHES PROVIDED THE OTHER UTILITY IS CONCRETE JACKETED, AND 18-INCHES IF NO CONCRETE JACKETS ARE USED. IN ALL APPLICABLE INSTANCES, THE WATERLINES SHALL BE AT A GRADE HIGHER THAN OTHER UTILITIES. UTILIZE PERPENDICULAR CROSSINGS WHERE PRACTICABLE FOR WATERLINES, CENTER FULL PIPE LENGTHS AT UTILITY CROSSINGS WHENEVER POSSIBLE.
- MINIMUM HORIZONTAL CLEARANCE BETWEEN WATERLINES AND OTHER UTILITIES SHALL BE 8-FEET (CLEAR SPACE - NOT CENTERLINE TO CENTERLINE) FOR ROAD RIGHT-OF-WAYS OF 50 FEET OR LESS, AND 10-FEET FOR ROAD RIGHT-OF-WAYS OF MORE THAN 50 FEET.
- ALL WATER SYSTEM PIPELINES, 4-INCHES OR LARGER IN DIAMETER, SHALL BE DUCTILE IRON, PUSH ON JOINTS, CLASS 52, AND ALL PIPELINES SMALLER THAN 4-INCHES IN DIAMETER SHALL BE SOFT COPPER, TYPE "K", UNLESS OTHERWISE SPECIFIED.
- PIPE CUSHION FOR COPPER SERVICE LATERALS SHALL BE NO. 4 MANUFACTURED FINE SAND.
- METER BOXES FOR 5/8-INCH METERS PLACED OUTSIDE OF PAVEMENT TO BE TYPE "B" PER STD DETAILS M1 & M2. METER BOXES FOR 1-INCH METERS OR FOR 5/8-INCH STD DETAIL M3.
- RELOCATION OF EXISTING METERS SHALL BE DONE UNDER D.W.S. SUPERVISION. RELOCATION OF CUSTOMER SERVICE LINES TO RELOCATED METERS SHALL BE COPPER (TYPE "K") AND DONE BY THE CONTRACTOR. ALL WORK AND MATERIALS SHALL BE PROVIDED BY THE CONTRACTOR AND CONSIDERED INCIDENTAL TO THE RELOCATION WORK. EXISTING METER BOXES DAMAGED BY THE CONTRACTOR SHALL BE REPAIRED AT THE CONTRACTOR'S COST. WHEN APPLICABLE, A DIELECTRIC UNION SHALL BE USED TO CONNECT THE COPPER PIPE TO THE CUSTOMER'S GALVANIZED IRON (G.I.) PIPE.
- SOLDER (1/8-INCH DIA.) AND FLUX USED SHALL NOT CONTAIN MORE THAN 0.2% LEAD
- LOTS REQUIRING A DEPARTMENT OF WATER SUPPLY APPROVED BACKFLOW PREVENTION ASSEMBLY SHALL HAVE ONE. IT MUST BE INSTALLED ON PRIVATE PROPERTY IN ACCORDANCE WITH D.W.S. STANDARD DETAIL NO. V9 AND DEPARTMENTAL STAFF MUST APPROVE THE INSTALLATION BEFORE WATER SERVICE CAN BE STARTED.
- WHERE WATER SHUT-OFF OF MORE THAN 3 HOURS BECOMES NECESSARY, THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL PROVIDE A TEMPORARY BY-PASS LINE. THE DWS ENGINEER SHALL DETERMINE THE BY-PASS LINE SIZE. IF NECESSARY, THE DWS ENGINEER MAY REQUIRE A BY-PASS LINE, REGARDLESS OF THE EXPECTED SHUT-OFF PERIOD.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR RECORD DRAWINGS (AS-BUILT DRAWINGS) AND THE LICENSED ENGINEER SHALL CERTIFY THE DRAWINGS AS TO ACCURACY AND SUBMIT THE DRAWINGS AND AS-BUILT TRACINGS TO THE DWS.
- AFTER JANUARY 4, 2014, ALL BRASS PRODUCTS MUST CONFORM TO NSF STANDARD 61 AND NSF STANDARD 372 OF THE SDWA, AND BE CERTIFIED AS "LEAD-FREE" BY THE MANUFACTURER. "LEAD-FREE" IS DEFINED AS THE ALLOWABLE LEAD CONTENT OF NOT MORE THAN 0.25% IN THE WETTED SURFACE. CERTIFICATION FROM THE MANUFACTURER MUST BE SUBMITTED TO THE DEPARTMENT OF WATER SUPPLY FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION. ANY BRASS PRODUCT INSTALLED WITHOUT APPROVAL MUST BE REMOVED AT NO EXPENSE TO THE DEPARTMENT.
- BOXED WATERLINE DETAILS BELOW TAKEN FROM THE WATER SYSTEM STANDARDS.



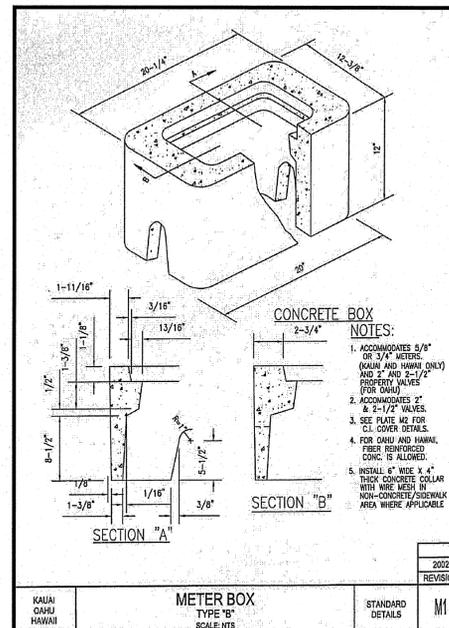
1 TYPICAL TRENCH AND PAVEMENT
C-3 REPAIR SECTION FOR WATERLINES
NOT TO SCALE



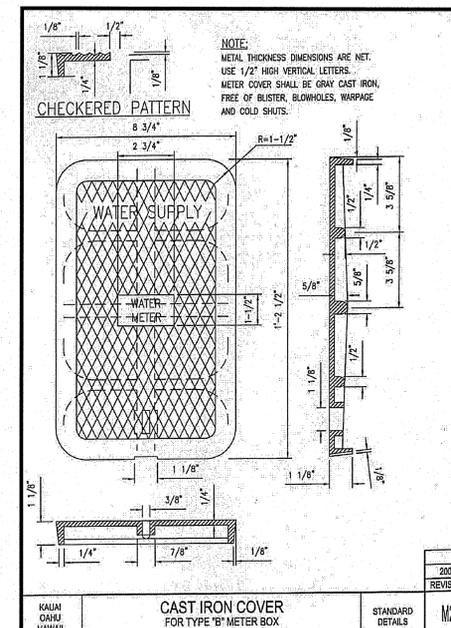
2 TYPICAL SINGLE SERVICE LATERAL
C-3 NOT TO SCALE

SERVICE LATERAL AND CONNECTION MATERIAL SCHEDULE											
SERVICE CONNECTION MATERIAL											
SERVICE LATERAL MATERIAL											
TYPE	SIZE	SIZE	QNT.								
A	1	1-1/2	1	1-1/2	1	1-1/2	1	1-1/2	1	1-1/2	1
B	1-1/2	1-1/2	1	1-1/2	1	1-1/2	1	1-1/2	1	1-1/2	1
C	1-1/2	1-1/2	1	1-1/2	1	1-1/2	1	1-1/2	1	1-1/2	1
D	1-1/2	1-1/2	1	1-1/2	1	1-1/2	1	1-1/2	1	1-1/2	1

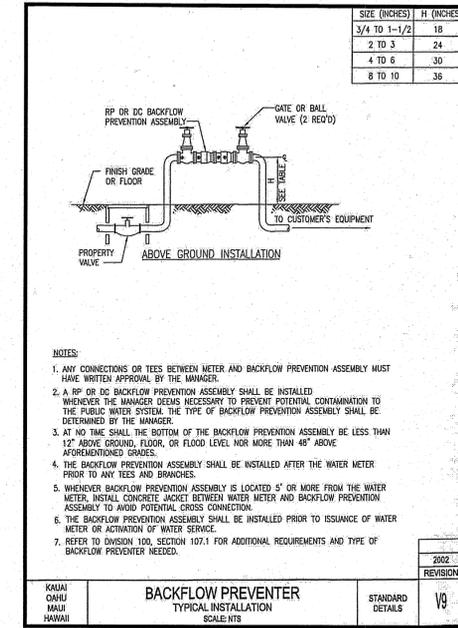
3 SCHEDULE OF COPPER FITTINGS
C-3 NOT TO SCALE



4 METER BOX TYPE "B"
C-3 NOT TO SCALE



5 CAST IRON COVER FOR
C-3 TYPE "B" METER BOX
NOT TO SCALE



6 BACKFLOW PREVENTER
C-3 NOT TO SCALE

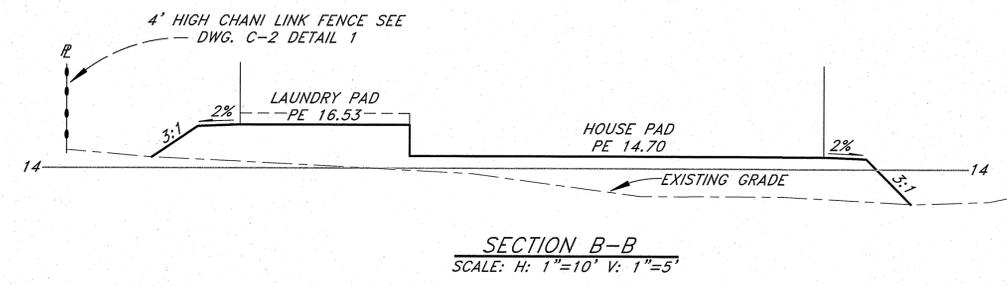
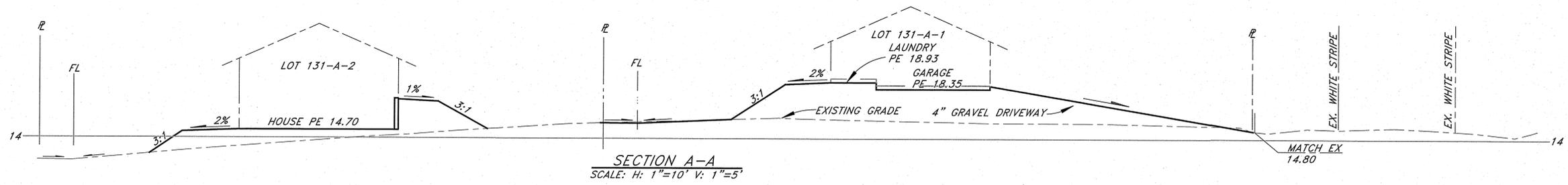
REVISIONS
NO. DATE DWS. CHECKER INSTALL BACKFLOW PREVENTER
3, 5, 6, 7, 8, 12 & 13
DATE
PRINTS TO

This work was prepared by me or under my supervision and construction of this project will be under my observation.
Exp. 04-30-16
Wesley P. Segawa & Associates, Inc.
Wesley P. Segawa, P.E., License No. 4004-C
HAWAII

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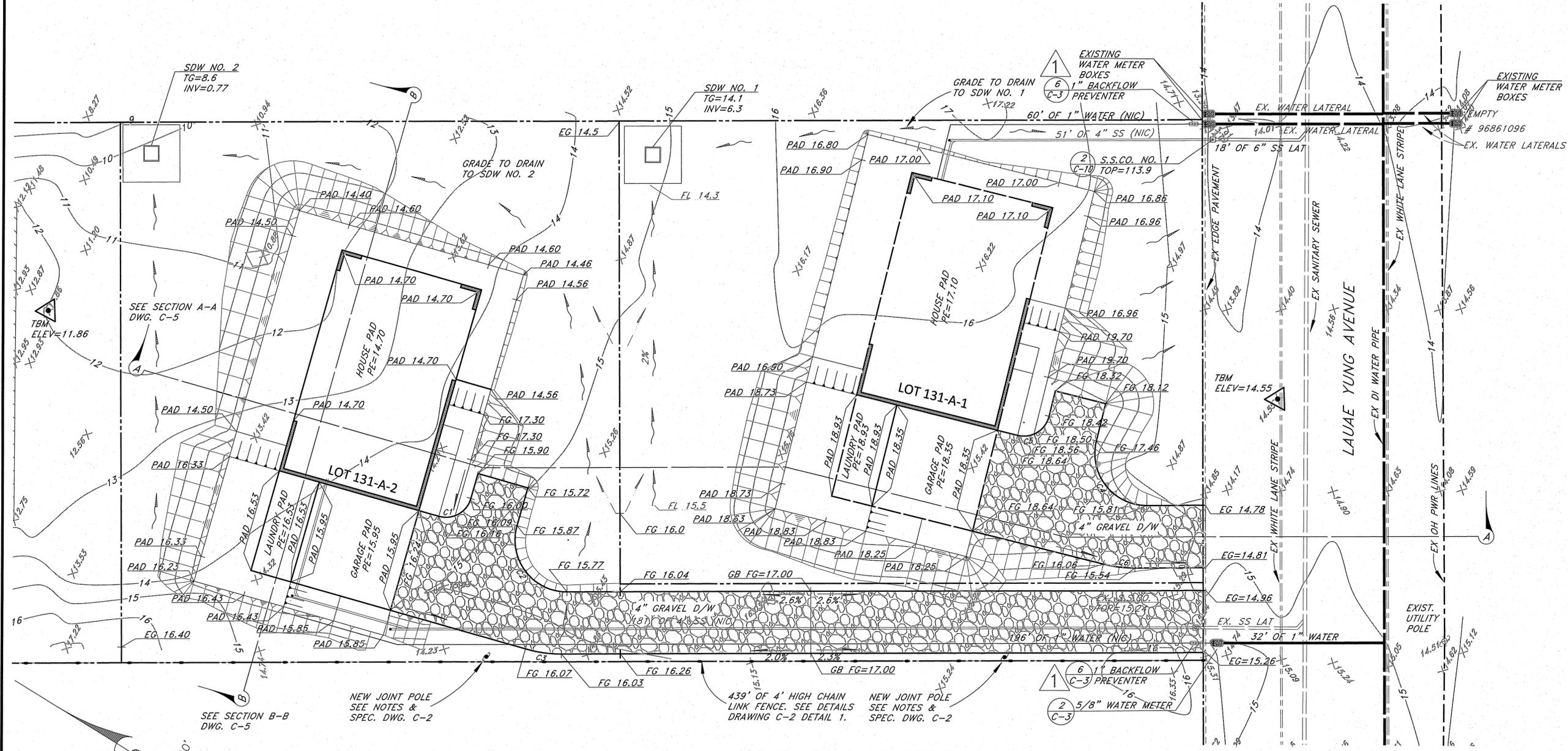
Project Title: KEAUKAHA TRACT 1 IMPROVEMENTS
Sheet Title: WATER NOTES & DETAILS

DESIGN BY: DRB
DRAWN BY: DRB
CHECKED BY: DL
APPROVED BY: DL
DATE: 2015
SCALE: AS NOTED
FILE No. W1302.43
DRAWING No. C-3
SHEET No. 4 OF 14 SHTS.

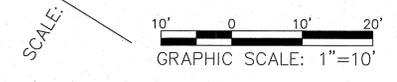


Curve Table

Curve #	Length	Radius	Delta	Chord Direction	Chord Length
C1	7.85	5.00	90.00	S57° 00' 00"E	7.07
C2	18.52	10.00	106.10	S24° 57' 00"W	15.98
C3	7.02	25.00	16.10	S20° 03' 00"E	7.00
C4	18.17	10.00	104.13	S23° 57' 58"W	15.77
C5	7.85	5.00	90.00	S58° 58' 05"E	7.07
C6	6.17	25.00	14.13	S21° 02' 02"E	6.15



GRADING AND DRAINAGE PLAN
SCALE: 1"=10'



No.	DATE	DWG.	CHK.	REVISIONS
1	4/5/2016	3, 5, 6, 7, 8, 12 & 13	DL	INSTALL BACKFLOW PREVENTER
2				
3				
4				

This work was prepared by me or under my supervision and construction of this project was under my observation.
Exp. 04-30-16

Wesley R. Segawa & Associates, Inc.
Wesley R. Segawa, P.E.
Professional Engineer
No. 4004-C
HAWAII

WRSA

Civil & Structural Engineers
Wesley R. Segawa and Associates, Inc.
Committed to Quality Performance & Value

101 Silva Street, Suite 201 Hilo, Hawaii 96720-4755
Telephone: (808) 935-4677 Fax: (808) 935-2070

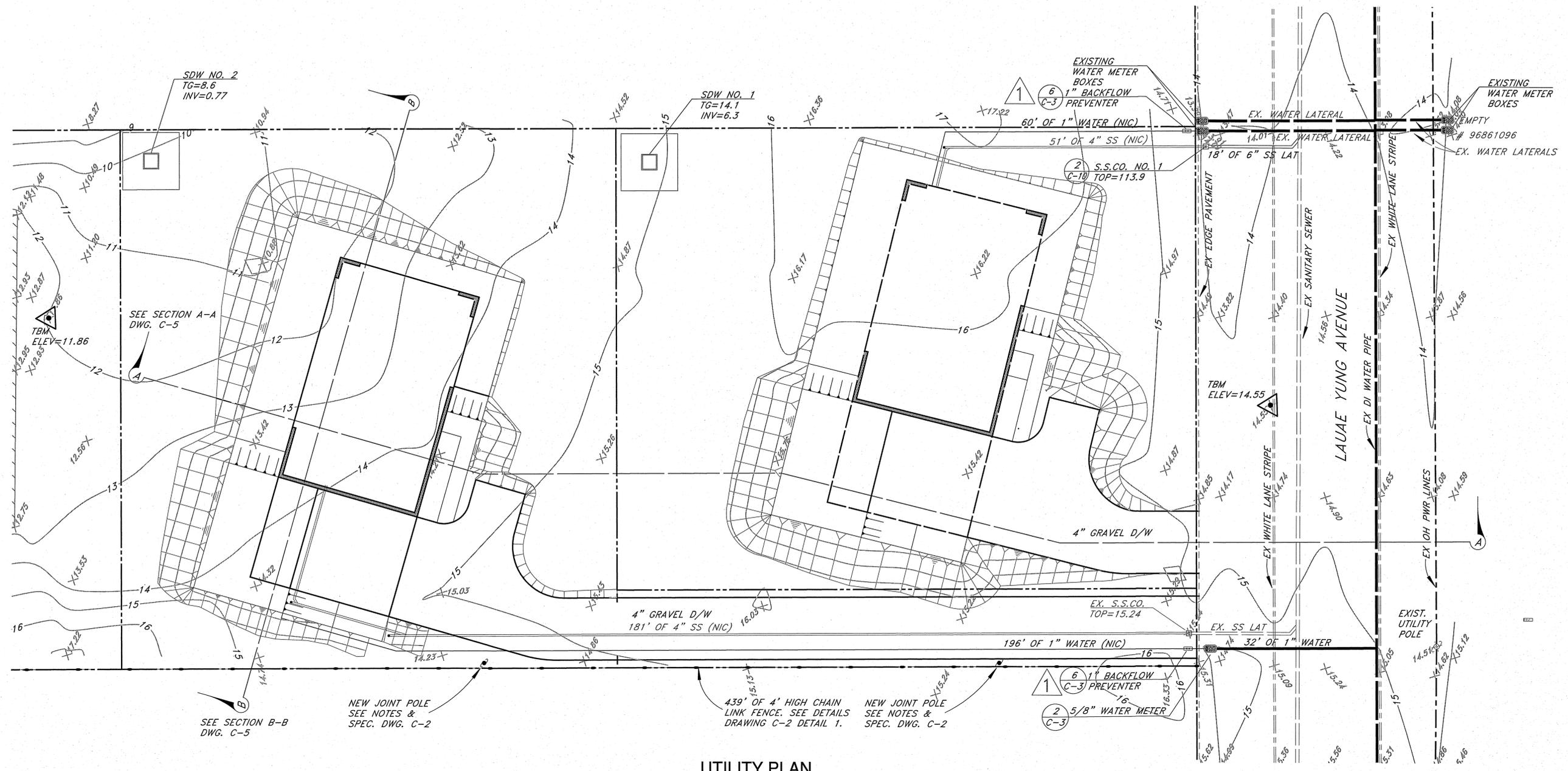
Project Title: **KEAUKAHA TRACT 1 IMPROVEMENTS**
LOTS 131-A-1, 131-A-2 & 131-A-3

Sheet Title: **GRADING PLAN - LOT 131-A-1 & 2**

DESIGN BY: DRB
DRAWN BY: DRB
CHECKED BY: DL
APPROVED BY: DL
DATE: 2015
SCALE: AS NOTED
FILE No. W1302.43

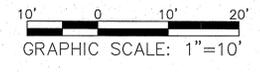
DRAWING No.
C-5

SHEET No.
6
OF **14** SHTS.



UTILITY PLAN

SCALE: 1"=10'



SCALE: 1"=10'

SEE SECTION A-A
DWG. C-5

SEE SECTION B-B
DWG. C-5

NEW JOINT POLE
SEE NOTES &
SPEC. DWG. C-2

439' OF 4' HIGH CHAIN
LINK FENCE. SEE DETAILS
DRAWING C-2 DETAIL 1.

NEW JOINT POLE
SEE NOTES &
SPEC. DWG. C-2

NO.	DATE	BY	CHK	REVISIONS
1	4/15/2016	3, 5, 6, 7, 8, 12 & 13	DL	INSTALL BACKFLOW PREVENTER
2				
3				
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6				
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13				
14				
15				
16				
17				
18				
19				
20				

This work was prepared by me or under my supervision and construction of this project will be under my observation.
Exp. 04-30-16

Wesley R. Sogawa & Associates, Inc.
Wesley R. Sogawa, P.E.
Professional Engineer
No. 4904-C
HAWAII

WRSIA
Wesley R. Sogawa and Associates, Inc.
Civil & Structural Engineers
Commitment to Quality Performance & Value

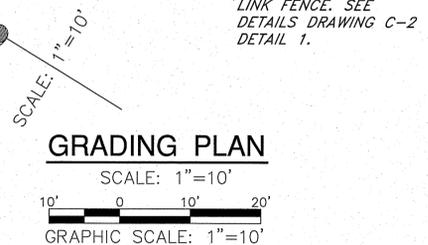
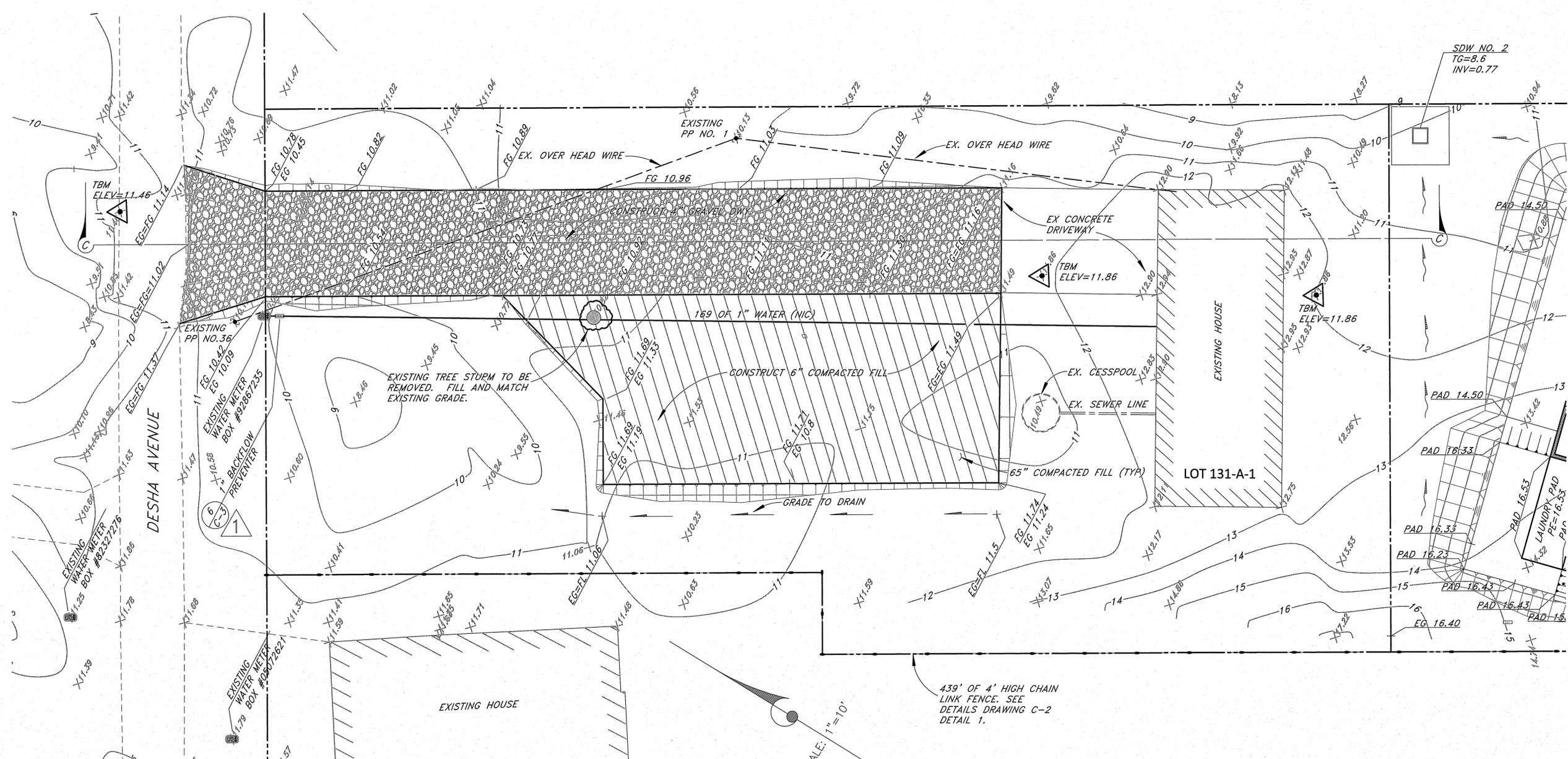
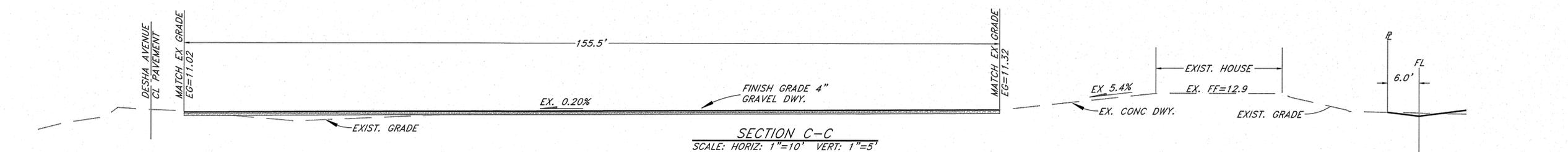
101 Silva Street, Suite 201 Hilo, Hawaii 96720-4755
Telephone: (808) 935-4677 Fax: (808) 935-2070

Project Title: **KEAUKAHA TRACT 1 IMPROVEMENTS**
LOTS 131-A-1, 131-A-2 & 131-A-3
Sheet Title: **UTILITY PLAN - LOT 131-A-1 & 2**

DESIGN BY: DRB
DRAWN BY: DRB
CHECKED BY: DL
APPROVED BY: DL
DATE: 2015
SCALE: AS NOTED
FILE No. W1302.43

DRAWING No.
C-6

SHEET No.
7
OF 14 SHTS.



SECTION C-C
SCALE: HORIZ: 1"=10' VERT: 1"=5'

GRADING PLAN

NO.	DATE	BY	CHKD.	REVISIONS
1	4/5/2016	DRB	DL	INSTALL BACKFLOW PREVENTER
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

This work was prepared by me or under my supervision and construction of this project was supervised under my observation.
Exp. 04-30-16

Wesley R. Segawa & Associates, Inc.
Wesley R. Segawa, P.E.
No. 4004-C
HAWAII

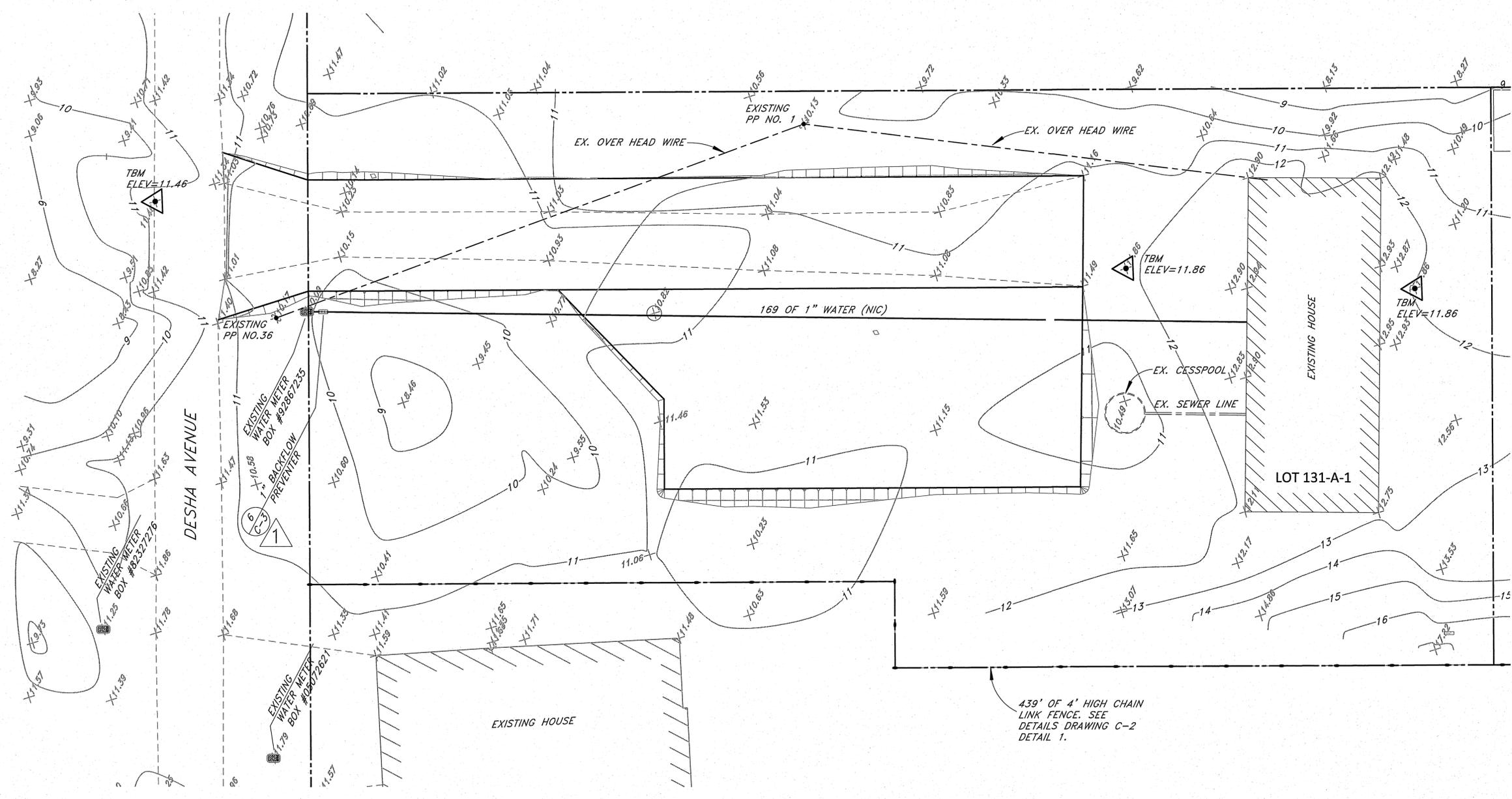
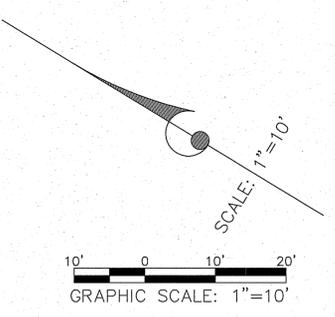
WRSA
Wesley R. Segawa and Associates, Inc.
Committed to Quality Performance & Value

Civil & Structural Engineers
101 Sila Street, Honolulu, HI 96813
Telephone: (808) 935-4677 Fax: (808) 935-52070

Project Title: KEAUKAHA TRACT 1 IMPROVEMENTS
LOTS 131-A-1, 131-A-2 & 131-A-3
Sheet Title: GRADING PLAN - LOT 131-A-3

DESIGN BY: DRB
DRAWN BY: DRB
CHECKED BY: DL
APPROVED BY: DL
DATE: 2015
SCALE: AS NOTED
FILE No. W1302.43

DRAWING No. **C-7**
SHEET No. **8**
OF **14** SHEETS.



UTILITY PLAN
SCALE: 1"=10'

439' OF 4' HIGH CHAIN LINK FENCE. SEE DETAILS DRAWING C-2 DETAIL 1.

NO.	DATE	BY	CHK.	REVISIONS
1	4/5/2016	DL	DL	INITIAL BACKFLOW PREVENTER
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				

This work was prepared by me or under my direct supervision and this project will be under my observation. Exp. 04-30-16

Wesley R. Segawa & Associates, Inc.
Civil & Structural Engineers
101 Silva Street, Suite 201 Hilo, Hawaii 96720-4755
Telephone: (808) 935-4677 Fax: (808) 935-2070

Wesley R. Segawa, P.E.
Professional Engineer
No. 4004-C
HAWAII

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committed to quality performance & value

Civil & Structural Engineers
101 Silva Street, Suite 201 Hilo, Hawaii 96720-4755
Telephone: (808) 935-4677 Fax: (808) 935-2070

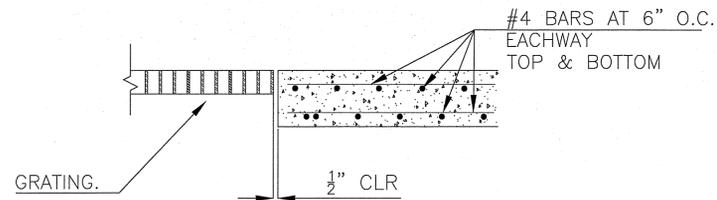
Project Title: **KEAUKAHA TRACT 1 IMPROVEMENTS**
LOTS 131-A-1, 131-A-2 & 131-A-3

Sheet Title: **UTILITY PLAN - LOT 131-A-3**

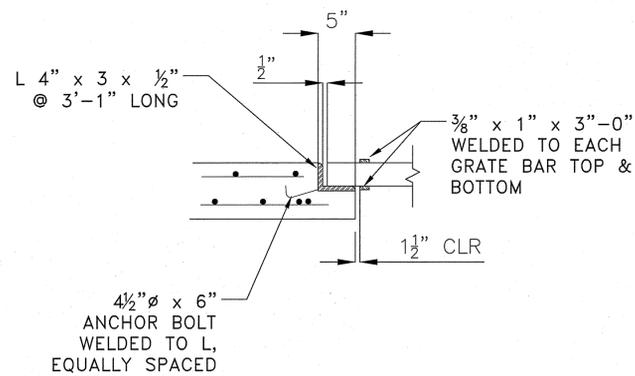
DESIGN BY: DRB
DRAWN BY: DRB
CHECKED BY: DL
APPROVED BY: DL
DATE: 2015
SCALE: AS NOTED
FILE No. W1302.43

DRAWING No.
C-8

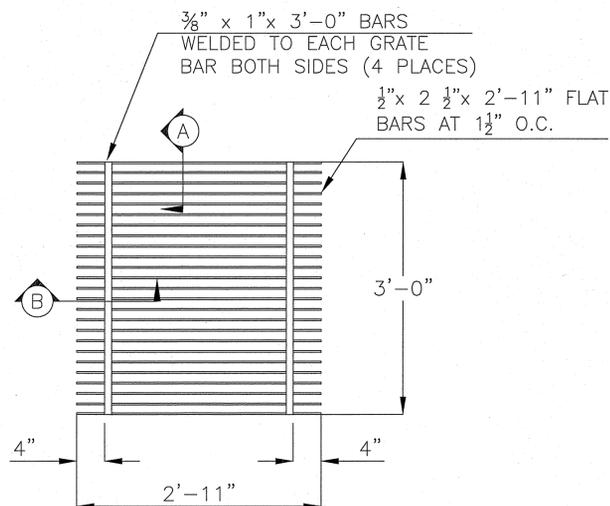
SHEET No.
9
OF **14** SHTS.



SECTION A-A
NOT TO SCALE



SECTION B-B
NOT TO SCALE



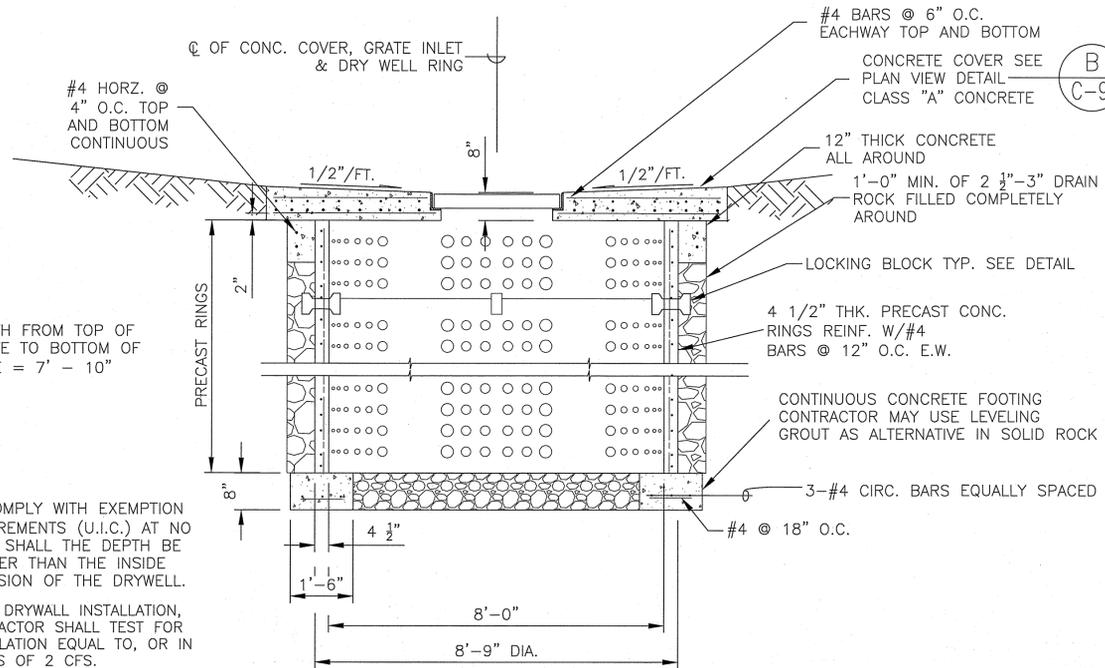
GRATING
NOT TO SCALE

A DRYWELL GRATE DETAIL
C-9 NOT TO SCALE

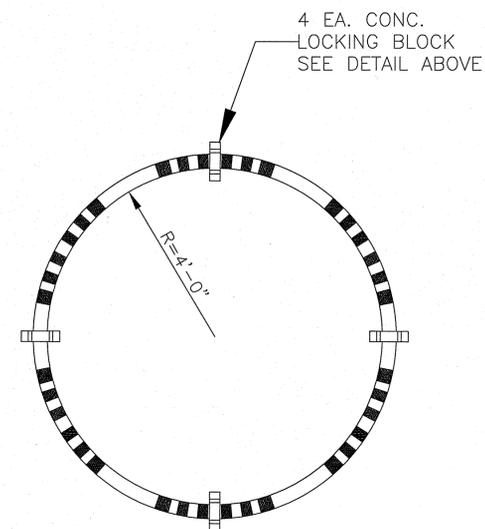
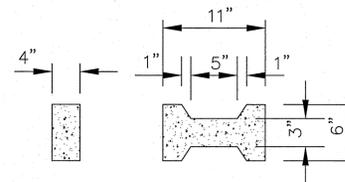
DEPTH FROM TOP OF GRATE TO BOTTOM OF HOLE = 7' - 10"

NOTES:

1. TO COMPLY WITH EXEMPTION REQUIREMENTS (U.I.C.) AT NO POINT SHALL THE DEPTH BE GREATER THAN THE INSIDE DIMENSION OF THE DRYWELL.
2. AFTER DRYWELL INSTALLATION, CONTRACTOR SHALL TEST FOR PERCOLATION EQUAL TO, OR IN EXCESS OF 2 CFS.

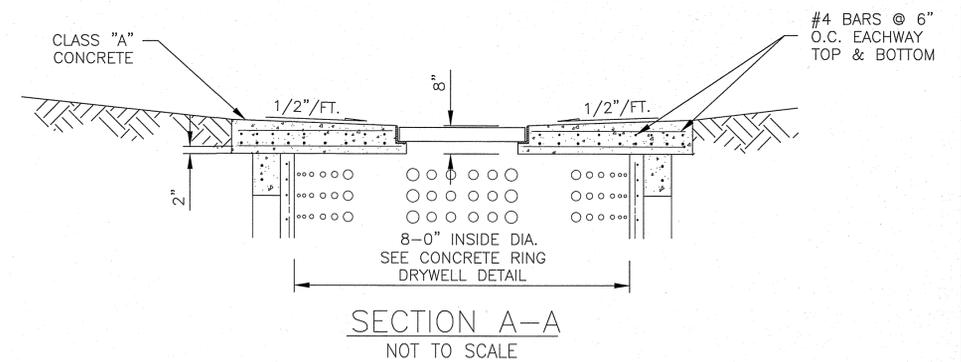


CONCRETE RING DRYWELL
NOT TO SCALE

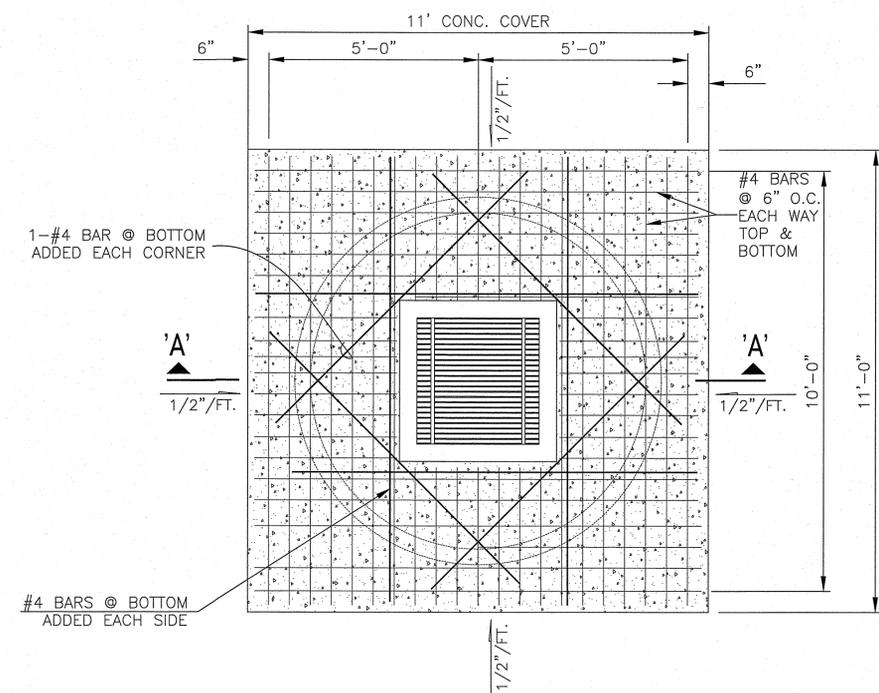


TYPICAL RING CROSS SECTION
NOT TO SCALE

B CONCRETE DRYWELL DETAIL
C-9 NOT TO SCALE



SECTION A-A
NOT TO SCALE



PLAN
NOT TO SCALE

NO.	DATE	BY	CHK.	REVISIONS

This work was prepared by me or under my supervision and construction in this project shall be under my supervision.
Exp. 04-30-16
Wesley R. Sigawa & Associates, Inc.



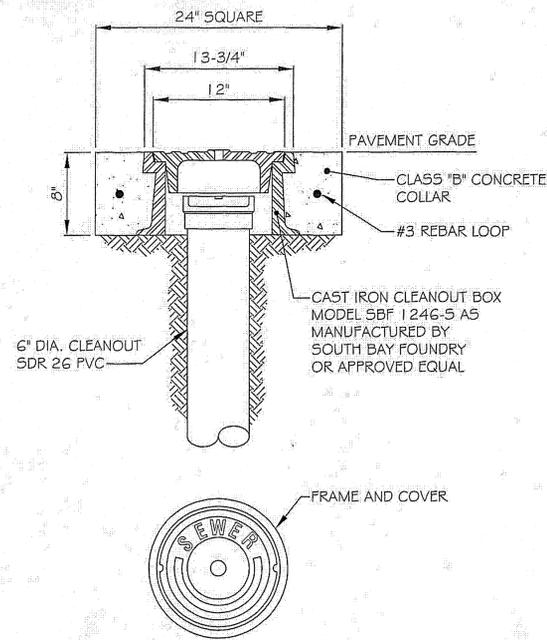
WRSA
Wesley R. Sigawa and Associates, Inc.
Civil & Structural Engineers
Committed to Quality Performance & Value
101 Silva Street, Suite 201 Hilo, Hawaii 96720-4755
Telephone: (808) 935-4577 Fax: (808) 935-2070

Project Title: KEAUKAHA TRACT 1 IMPROVEMENTS
LOTS 131-A-1, 131-A-2 & 131-A-3
Sheet Title: SHALLOW DRYWELL DETAILS

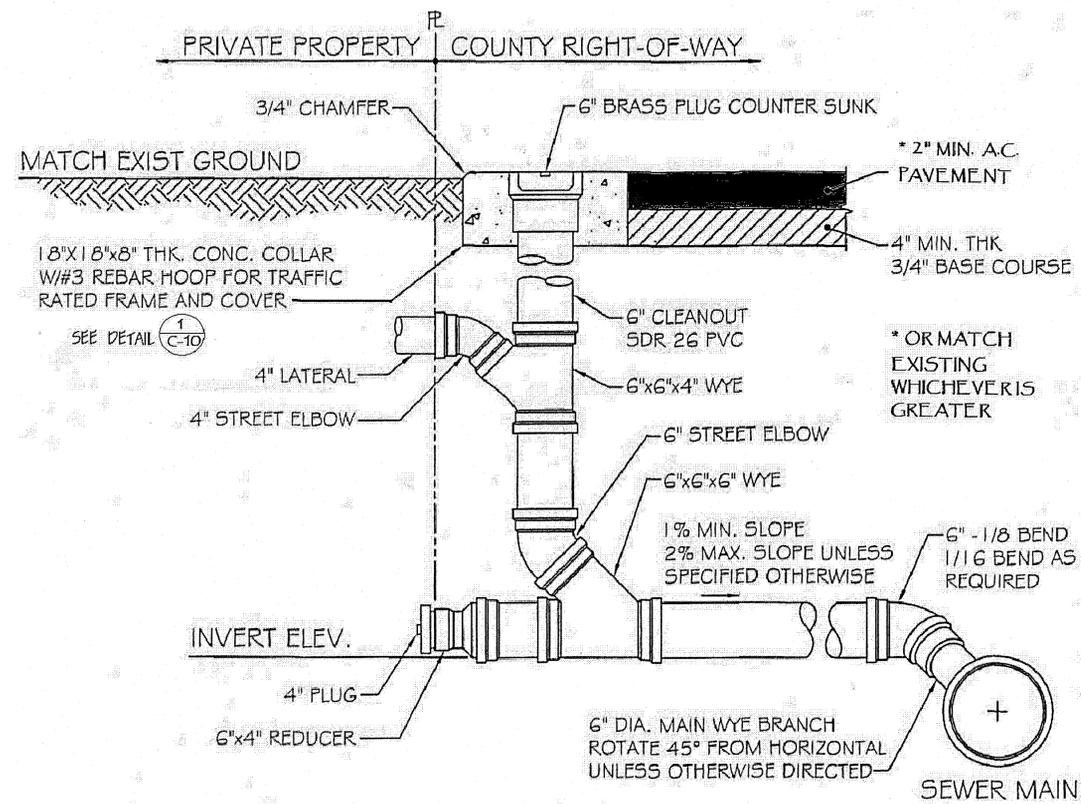
DESIGN BY: DRB
DRAWN BY: DRB
CHECKED BY: DL
APPROVED BY: DL
DATE: 2015
SCALE: AS NOTED
FILE No. W1302.43

DRAWING No. C-9

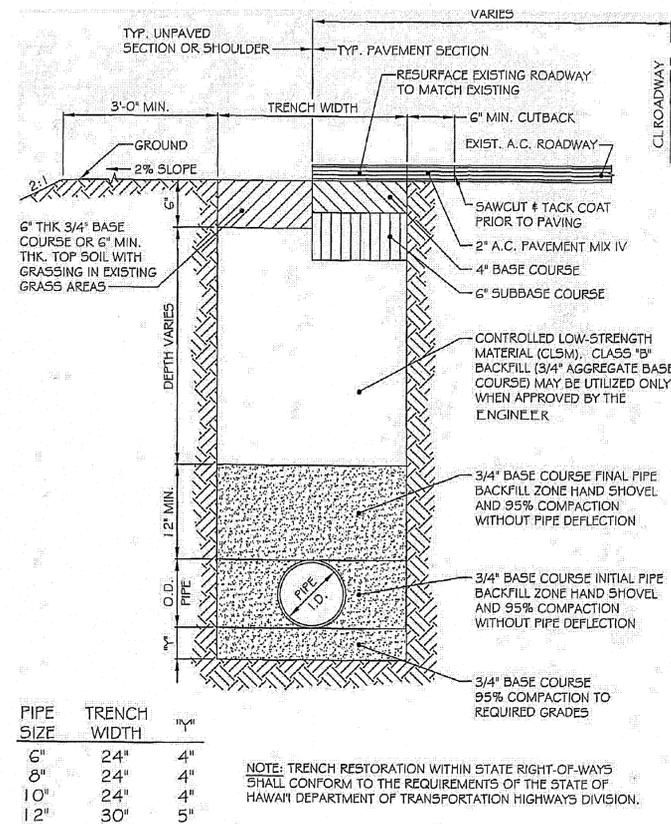
SHEET No. 10 OF 14 SHTS.



1
C-10 TYPICAL TRAFFIC RATED FRAME & COVER
(COUNTY OF HAWAII, ENVIRONMENTAL MANAGEMENT,
WASTEWATER DIVISION)
NOT TO SCALE



2
C-10 TYPICAL LATERAL & CLEANOUT DETAIL
(COUNTY OF HAWAII, ENVIRONMENTAL MANAGEMENT,
WASTEWATER DIVISION)
NOT TO SCALE



3
C-10 TYPICAL TRENCH DETAIL
COUNTY ROADS
(COUNTY OF HAWAII, ENVIRONMENTAL MANAGEMENT,
WASTEWATER DIVISION)
NOT TO SCALE

DIVISION CHIEF, WASTEWATER DIVISION
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
COUNTY OF HAWAII

DATE

No.	DATE	CHK.	REVISIONS

This work was prepared by me or under my supervision and construction of this work shall be under my observation.
Exp. 04-30-16

WESTLEY F. SEGAWA & ASSOCIATES, INC.
Professional Engineer
No. 4004-C
HAWAII

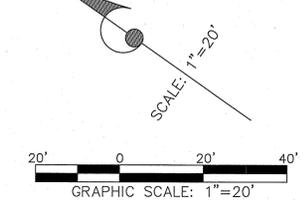
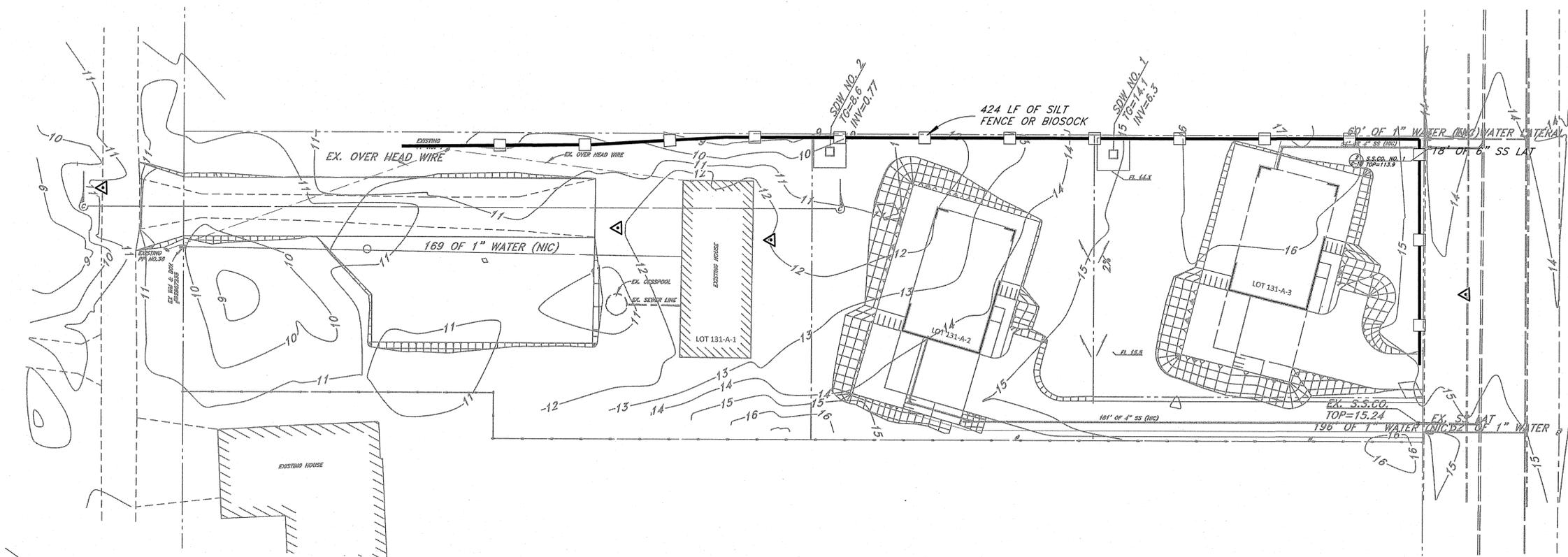
WRSA
Civil & Structural Engineers
Westley F. Segawa and Associates, Inc.
Committed to Quality Performance & Value

101 Silva Street, Suite 201 Hilo, Hawaii 96720-4755
Telephone: (808) 935-4677 Fax: (808) 935-2070

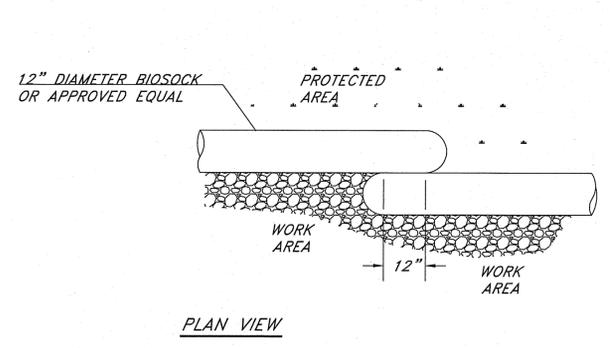
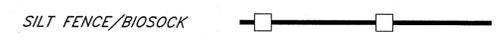
Project Title: KEAUKAHA TRACT 1 IMPROVEMENTS
LOTS 131-A-1, 131-A-2 & 131-A-3
Sheet Title: SANITARY SEWER DETAILS

DESIGN BY: DRB
DRAWN BY: DRB
CHECKED BY: DL
APPROVED BY: DL
DATE: 2015
SCALE: AS NOTED
FILE No. W1302.43

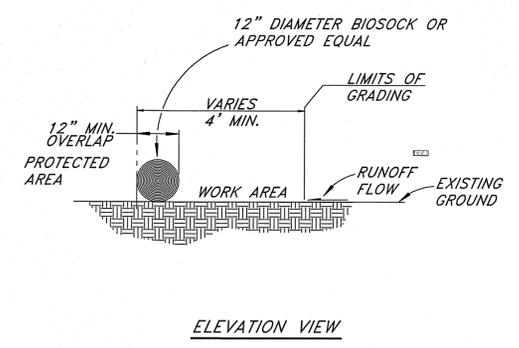
DRAWING No.
C-10
SHEET No.
11
OF 14 SHTS.



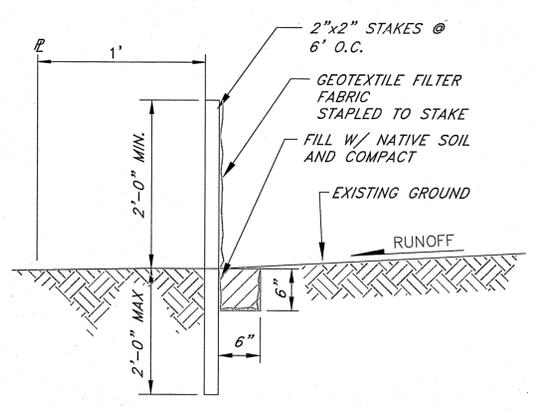
LEGEND:



BIOSOCK DETAIL (12" DIA)
NOT TO SCALE



ELEVATION VIEW



SILT FENCE NOTES:

BIOSOCK MAYBE USED IN LIEU OF SILT FENCE.
THE CONTRACTOR SHALL INSTALL SILT FENCES OR BIO-SOCK PRIOR TO CONSTRUCTION.
ALL BEST MANAGEMENT PRACTICES (BMP'S) SHALL NOT BE REMOVED UNTIL ALL PERMANENT EROSION CONTROL MEASURES ARE IN PLACE AND ESTABLISHED.
AT THE END OF GRADING OPERATIONS, EXISTING CB'S AND DMH'S SURROUNDING THE PROJECT SITE SHALL BE INSPECTED AND ANY ACCUMULATED SEDIMENT AND DEBRIS FOUND IN THE DRAIN STRUCTURES SHALL BE REMOVED. FLUSHING INTO THE CB'S AND DMH'S ARE PROHIBITED.

SILT FENCE DETAIL
NO SCALE

EROSION CONTROL NOTES:

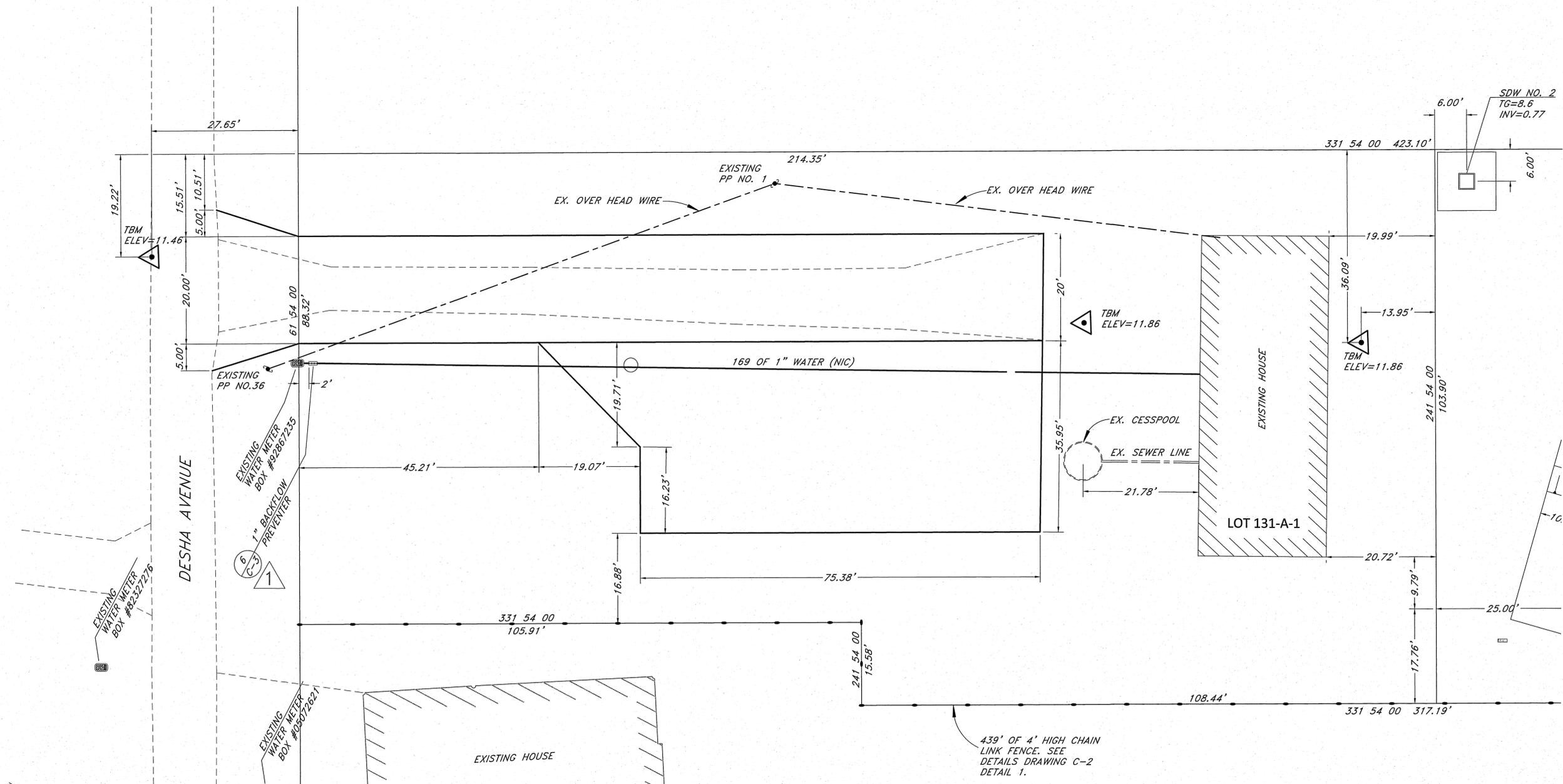
1. THE CONTRACTOR SHALL REFER TO THE RULES RELATING TO SOILS EROSION STANDARDS AND GUIDELINES, APRIL 1999, BY THE CITY AND COUNTY OF HONOLULU DEPARTMENT OF PLANNING AND PERMITTING FOR BEST MANAGEMENT PRACTICES.
2. THE CONTRACTOR SHALL STABILIZE THE CONSTRUCTION SITE AT ALL POINTS OF EGRESS AND INGRESS WITH A 12' WIDE X 20' LONG X 8" DEEP SECTION OF NO. 2 CRUSHED ROCK.
3. STOCKPILES SHALL NOT BE LOCATED IN DRAINAGE WAYS OR OTHER AREAS OF CONCENTRATED FLOWS. SEDIMENT TRAPPING DEVICES SUCH AS SILT FENCE OR BIOSOCKS SHALL BE USED AROUND THE BASE OF ALL STOCKPILES.
4. DUST CONTROL SHOULD BE APPLIED TO REDUCE DUST EMISSIONS. THE CONTRACTOR, AT THEIR OWN EXPENSE, SHALL KEEP THE PROJECT AREA AND SURROUNDING AREA FREE FROM DUST NUISANCE. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL STANDARDS CONTAINED IN HAWAII ADMINISTRATIVE RULES: CHAPTER 11-60, "AIR POLLUTION CONTROL".
5. SURFACE FLOW FROM ABOVE AN EXPOSED SLOPE SHALL NOT BE ALLOWED TO FLOW OVER THE SLOPE WITHOUT PROTECTION. SLOPE PROTECTION SHALL BE USED ON AREAS WITH SLOPES GREATER THAN 50% AND ON AREAS OF MODERATE SLOPES THAT ARE PRIME TO EROSION.
6. ALL STORM DRAIN INLETS ON SITE, AND THOSE OFFSITE WHICH MAY RECEIVE RUNOFF FROM THE SITE SHALL USE AN INLET PROTECTION DEVICE.
7. TEMPORARY STABILIZATION IS NOT REQUIRED WHEN THE DISTURBED AREA WILL BE WORKED WITHIN A 14 DAY PERIOD. STABILIZATION IS REQUIRED FOR DISTURBED AREAS AT FINAL GRADE AND FOR THOSE AREAS THAT WILL NOT BE WORKED WITHIN A 14 DAY PERIOD.
8. ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED PRIOR TO REMOVING EROSION AND SEDIMENT MEASURES. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED. TRAPPED SEDIMENT AND AREAS OF DISTURBED SOIL WHICH RESULT FROM THE REMOVAL OF THE TEMPORARY MEASURES SHALL BE IMMEDIATELY PERMANENTLY STABILIZED.

NO.	DATE	BY	CHK	REVISIONS

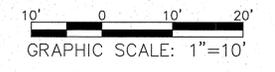
This work was prepared by me or under my direct supervision and the project will be under my observation.
Exp. 04-30-16
Wesley R. Segawa & Associates, Inc.
Wesley R. Segawa
DENNIS K. W. LEE
LICENSED PROFESSIONAL ENGINEER
No. 4004-C
HAWAII

WRSA
Wesley R. Segawa and Associates, Inc.
Committed to Quality Performance & Value
Civil & Structural Engineers
101 Silva Street, Suite 201 Hilo, Hawaii 96720-4755
Telephone: (808) 935-4677 Fax: (808) 935-2070

Project Title: **KEAUKAHA TRACT 1 IMPROVEMENTS LOTS 131-A-1, 131-A-2 & 131-A-3 EROSION CONTROL (BMP) PLAN**
Sheet Title:
DESIGN BY: DRB
DRAWN BY: DRB
CHECKED BY: DL
APPROVED BY: DL
DATE: 2015
SCALE: AS NOTED
FILE No. W1302.43
DRAWING No. **C-11**
SHEET No. **12** OF **14** SHTS.



DIMENSION PLAN
SCALE: 1"=10'



SCALE: 1"=10'

NO.	DATE	DWG.	CHK.	REVISIONS
1	4/5/2016	3, 5, 6, 7, 8, 12 & 13	DL	INSTALL BACKFLOW PREVENTER

This work was prepared by me or under my supervision and I am a duly Licensed Professional Engineer. Exp. 04-30-16

Wesley R. Segawa & Associates, Inc.
Professional Engineer
No. 4004-C
HAWAII

WRSA
Wesley R. Segawa and Associates, Inc.
Commitment to Quality Performance & Value

Civil & Structural Engineers
101 Silva Street, Suite 201 Hilo, Hawaii 96720-4755
Telephone: (808) 935-4677 Fax: (808) 935-2070

Project Title: **KEAUKAHA TRACT 1 IMPROVEMENTS**
LOTS 131-A-1, 131-A-2 & 131-A-3

Sheet Title: **DIMENSION PLAN LOT 131-A-3**

DESIGN BY: DRB
DRAWN BY: DRB
CHECKED BY: DL
APPROVED BY: DL
DATE: 2015
SCALE: AS NOTED
FILE No. W1302.43

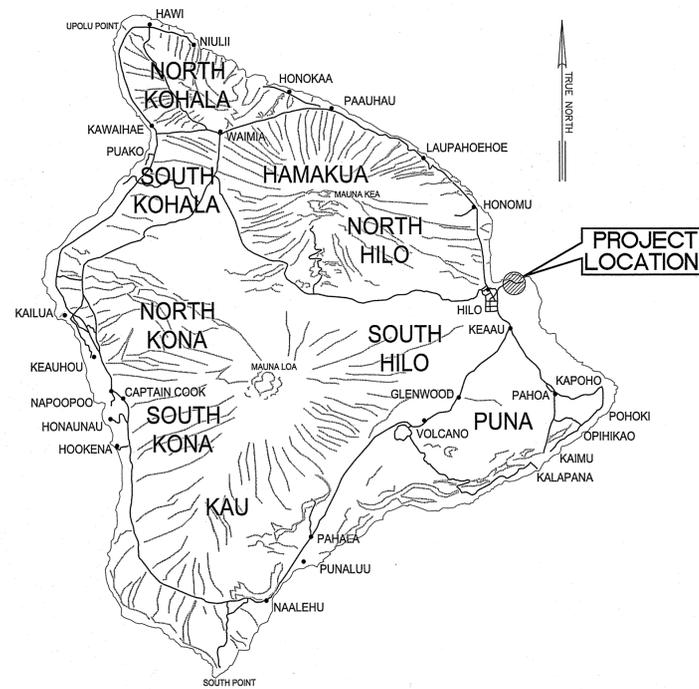
DRAWING No.
C-13

SHEET No.
14
OF 14 SHTS.

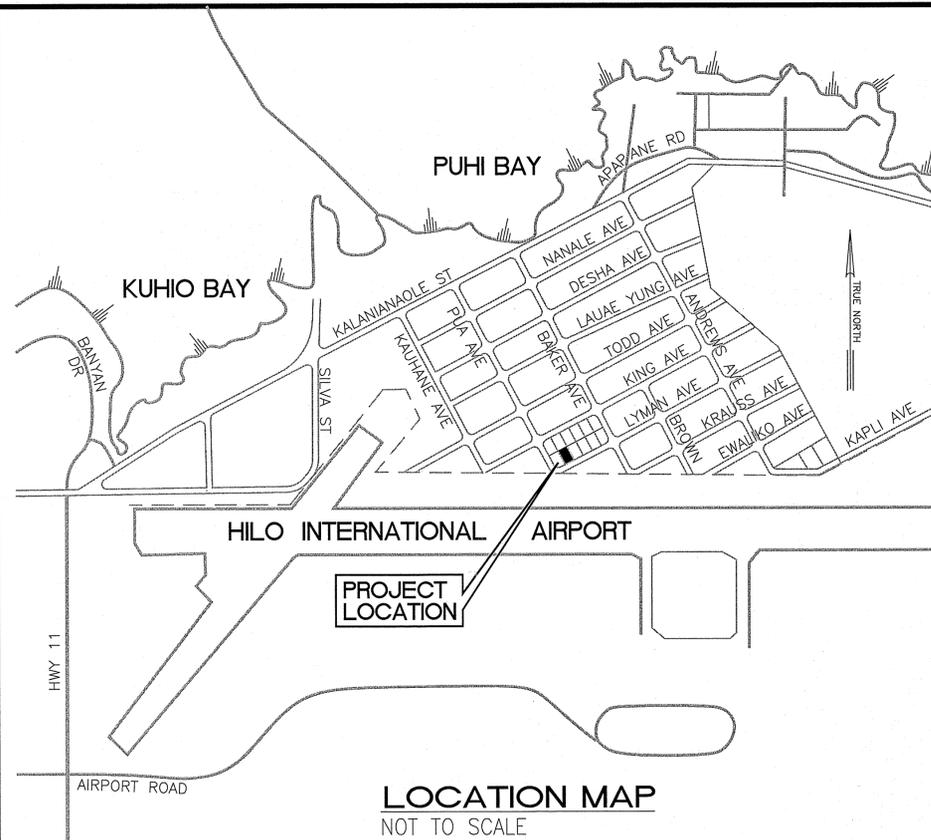
STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS

KEAUKAHA TRACT 1 IMPROVEMENTS
LOT 279-A & 279-B

WAIAKEA, SOUTH HILO, HAWAII
TAX MAP KEY: (3) 2 - 1 - 023: 071
IFB-16-HHL-014
SUBDIVISION APPLICATION NO: SUB-15-001467



ISLAND OF HAWAII
NOT TO SCALE



LOCATION MAP
NOT TO SCALE

I N D E X

SHEET NO.	DESCRIPTION	DRAWING NO.
1	TITLE SHEET	T-1
2	MISCELLANEOUS NOTES	C-1
3	UTILITY POLE NOTES AND SPECIFICATIONS	C-2
4	WATER NOTES & DETAILS	C-3
5	GRADING AND DRAINAGE PLAN	C-4
6	UTILITY PLAN	C-5
7	SHALLOW DRYWELL DETAILS	C-6
8	EROSION CONTROL (BMP) PLAN	C-7
9	DIMENSION PLAN	C-8

APPROVED BY:

Wesley R. Segawa
CHAIRMAN, HAWAIIAN HOMES COMMISSION
STATE OF HAWAII

1/26/16
DATE:

Wesley R. Segawa
MANAGER, CHIEF-ENGINEER, DEPARTMENT OF WATER SUPPLY
COUNTY OF HAWAII *W.Y.*

2/20/16
DATE:

DIRECTOR, PLANNING DEPARTMENT
COUNTY OF HAWAII

DATE:

FOR GRADING PURPOSES ONLY;

DIRECTOR, DEPARTMENT OF PUBLIC WORKS
COUNTY OF HAWAII

DATE:

NO.	DATE	DWG. CHK.	REVISIONS

This work was prepared by me or under my direct supervision and this project will be under my observation.
Exp. 04-30-16
Wesley R. Segawa
Wesley R. Segawa & Associates, Inc.
Professional Engineer
No. 4004-C
HAWAII

WRSA
Civil & Structural Engineers
Wesley R. Segawa and Associates, Inc.
Committed to Quality Performance & Value
101 Silva Street, Suite 201 Hilo, Hawaii 96720-4755
Telephones: (808) 935-4677 Fax: (808) 935-2070

Project Title: KEAUKAHA TRACT 1 IMPROVEMENTS
Sheet Title: LOTS 279-A & 279-B TITLE SHEET

DESIGN BY: DRB
DRAWN BY: DRB
CHECKED BY: DL
APPROVED BY: DL
DATE: SEPT. 2015
SCALE: AS NOTED
FILE No. W1302.47

DRAWING No. T-1

SHEET No. 1 OF 9 SHTS.

GRADING NOTES:

- ALL GRADING WORK SHALL CONFORM TO CHAPTER 10 OF THE HAWAII COUNTY CODE. SHOULD A GRADING PERMIT BE REQUIRED, NO WORK SHALL COMMENCE UNTIL THE DEPARTMENT OF PUBLIC WORKS (DPW) APPROVES A GRADING PERMIT.
- THE CONTRACTOR SHALL REMOVE ALL SILT AND DEBRIS DEPOSITED IN DRAINAGE FACILITIES, ROADWAYS AND OTHER AREAS RESULTING FROM HIS WORK. THE COSTS INCURRED FOR ANY NECESSARY REMEDIAL ACTION BY THE DPW, SHALL BE PAYABLE BY THE CONTRACTOR.
- THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL KEEP THE PROJECT AND SURROUNDING AREAS FREE FROM DUST NUISANCES. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL RULES OF THE STATE DEPARTMENT OF HEALTH, HAR 11-60.1, and FUGITIVE DUST.
- ALL GRADING OPERATIONS SHALL BE PERFORMED IN CONFORMANCE WITH THE APPLICABLE PROVISIONS OF THE HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 55, WATER POLLUTION CONTROL AND CHAPTER 54, WATER QUALITY STANDARDS, AND TO THE EROSION AND SEDIMENTATION CONTROL STANDARDS AND GUIDELINES OF THE DEPARTMENT OF PUBLIC WORKS, COUNTY OF HAWAII.
- THE CONTRACTOR SHALL SOD OR PLANT ALL SLOPES AND EXPOSED AREAS IMMEDIATELY AFTER THE GRADING WORK HAS BEEN COMPLETED.
- FILLS ON SLOPES STEEPER THAN 5:1 SHALL BE KEYED.
- THE CONTRACTOR SHALL INFORM THE DPW OF THE LOCATION OF THE DISPOSAL AND/OR BORROW SITE(S) REQUIRED FOR THIS PROJECT WHEN AN APPLICATION FOR A GRADING PERMIT IS MADE. THE DISPOSAL AND/OR BORROW SITE(S) MUST ALSO FULFILL THE REQUIREMENTS OF THE GRADING ORDINANCE.
- NO GRADING WORK SHALL BE DONE ON SATURDAYS, SUNDAYS, AND HOLIDAYS ANYTIME WITHOUT PRIOR APPROVAL FROM THE ENGINEER. GRADING WORK ON NORMAL WORKING DAYS SHALL BETWEEN THE HOURS OF 7:00 A.M. TO 3:00 P.M.
- FILLS SHALL BE COMPACTED TO 90 PERCENT (90%) OF MAXIMUM DENSITY PER ASTM D-1557 TEST.
- THE CONTRACTOR SHALL REMOVE ALL VEGETATION BEFORE PLACING FILLS ON NATURAL GROUND SURFACE.

ESTIMATED EARTHWORK QUANTITIES:

TOTAL EXCAVATION: 0 CU. YDS.
 TOTAL EMBANKMENT: 566 CU. YDS.

- THE QUANTITIES SHOWN ARE FOR GRADING PERMIT PURPOSES ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT QUANTITIES FOR BIDDING PURPOSES.

EARTHWORK QUANTITIES SHOWN WERE TAKEN FROM EXISTING GROUND TO FINISH GRADE.

TOTAL AREA TO BE GRADED 0.22 ACRES

SOLID WASTE CONSTRUCTION NOTES:

- UNLESS OTHERWISE SPECIFIED, THE CONTRACTOR IS RESPONSIBLE FOR THE PROPER HANDLING, STORAGE AND/OR DISPOSAL OF ALL WASTE GENERATED BY THIS CONSTRUCTION INCLUDING GRUBBING AND EXCESS EXCAVATED MATERIAL. ANY MATERIAL BROUGHT TO THE COUNTY LANDFILLS WILL BE SUBJECT TO THE INSTITUTED TIPPING FEE SYSTEM, WITH NO EXCEPTIONS OR EXEMPTIONS
- ALL WASTES GENERATED BY CONSTRUCTION, INCLUDING GRUBBING, DEMOLITION AND EXCESS EXCAVATION MATERIAL MAY BE BROUGHT TO THE WEST HAWAII OR THE HILO LANDFILL. THE CONTRACTOR SHALL CHECK WITH THE SOLID WASTE DIVISION FOR DISCLOSURE OF THE CURRENT LANDFILL FEE AND CONSIDERATION OF THAT FEE SHALL BE INCLUDED IN THE CONTRACTOR'S BID SUM.
- CONSTRUCTION, DEMOLITION AND GRUBBING MATERIAL SHALL NOT BE DEPOSITED AT ANY OF THE COUNTY TRANSFER STATIONS, BUT SHALL BE TRANSPORTED FOR DISPOSAL AT EITHER THE WEST HAWAII OR HILO LANDFILL.
- ASBESTOS MATERIAL MUST BE SEPARATED, DOUBLE BAGGED AND LANDFILLED IN ACCORDANCE WITH REGULATIONS OF THE SOLID WASTE DIVISION, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT. INFORMATION MAY BE OBTAINED BY CALLING THE DIVISION AT (808) 961-8339 BETWEEN 7:00 AM AND 4:00 PM MONDAY THROUGH FRIDAY.
- ALL GREEN WASTE GENERATED FROM GRUBBING WORK, SHALL BE SEPARATED AND DEPOSITED AT THE GREEN WASTE AREA AT THE HILO OR WEST HAWAII DISPOSAL SITE. (NOTE: NO TREATED LUMBER IS ALLOWED IN THE GREEN WASTE)
- RECYCLE AS MUCH OF THE SOLID WASTE MATERIAL GENERATED BY THIS CONSTRUCTION AS POSSIBLE. EXCESS MATERIAL SHALL BE DISPOSED OF PROPERLY.
- CONTRACTOR SHALL SUBMIT A REPORT PRIOR TO THE COMMENCEMENT OF WORK, PER SOLID WASTE DEMOLITION PLAN GUIDELINES, AS AMMENDED. AVAILABLE AT THE COUNTY OF HAWAII, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT OFFICE.

NOTES FOR WORK WITHIN THE ROAD-OF-WAY

- THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES, WHETHER SHOWN ON THE PLAN OR NOT, AND SHALL BE RESPONSIBLE FOR THE REPAIR OR REPLACEMENT OF SAME IN THE EVENT OF DAMAGES DUE TO HIS CONSTRUCTION PRACTICES. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH THE RESPECTIVE UTILITY COMPANIES.
- THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL TRAFFIC CONTROL DEVICES IN CONFORMANCE WITH THE CURRENT EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS," AND AS DIRECTED BY THE ENGINEER.
- THE PROPOSED UTILITY LINE LOCATION SHALL BE LAID OUT IN THE FIELD PRIOR TO THE CONDUCTING OF THE FIELD REVIEW BY THE ENGINEER.
- FIELD ADJUSTMENTS SHALL BE MADE AS DIRECTED BY THE ENGINEER PRIOR TO THE COMMENCEMENT OF ANY UTILITY LINE WORK.
- THE CONTRACTOR SHALL PROVIDE AT LEASE ONE (1) LANE FOR TRAFFIC MOVEMENT AT ALL TIMES. TWO (2) LANES FOR TRAFFIC MOVEMENT SHALL BE PROVIDED BETWEEN THE HOURS OF 3:00 P.M. TO 8:00 A.M.
- THE EXISTING PAVEMENT SHALL BE SAW-CUT BEFORE COMMENCEMENT OF TRENCHING WORK.
- ANY PAVEMENT OUTSIDE THE CONTRACT ZONE LIMITS DAMAGED AS A RESULT OF CONSTRUCTION OPERATIONS SHALL BE RESTORED TO ITS ORIGINAL CONDITION, OR BETTER, AS DIRECTED BY THE ENGINEER.
- A TEMPORARY COLD MIX PATCH SHALL BE APPLIED IMMEDIATELY UPON COMPLETION OF THE BACKFILLING OPERATION AND SHALL BE MAINTAINED BY THE CONTRACTOR UNTIL A PERMANENT PATCH IS AUTHORIZED BY THE ENGINEER.
- NO MATERIAL, EXCEPT THE TRENCH EXCAVATED MATERIAL, SHALL BE STOCKPILED CLOSER THAN SIX (6) FEET FROM THE EXISTING EDGE OF PAVEMENT.
- NO CONSTRUCTION EQUIPMENT SHALL BE PARKED WITHIN THE ROAD RIGHT-OF-WAY IN SUCH A MANNER THAT THE EQUIPMENT WILL OBSTRUCT THE NORMAL MOVEMENT AND SIGHT DISTANCE OF THE DRIVING MOTORIST, EXCEPT DURING ACTUAL WORKING HOURS.
- EXCEPT DURING ACTUAL WORKING HOURS, ALL SIGNS THAT DO NOT PERTAIN TO THE CONSTRUCTION ACTIVITY, SUCH AS "MEN WORKING" AND "FLAGMAN AHEAD" SHALL BE COVERED OR LAID DOWN. HOWEVER, ALL SIGNS NECESSARY FOR THE SAFETY OF THE PUBLIC SHALL BE MAINTAINED.
- ANY PAVEMENT MARKINGS, STRUCTURES, AND APPURTENANCES (WITHIN OR OUTSIDE OF THE CONTRACT ZONE LIMITS) DAMAGED AND/OR WORN AWAY UNDER THE PERMIT SHALL BE REPAINTED OR RECONSTRUCTED AS DIRECTED BY THE ENGINEER.
- NO TRENCHING SHALL BE LEFT OPEN FOR MORE THAN FIVE (5) WORKING DAYS.
- SHOULD TRENCHING OCCUR THROUGH AN EXISTING SIDEWALK, OR SHOULD DAMAGES OCCUR TO THE SIDEWALK AS A RESULT OF ANY CONSTRUCTION WORK, THE FOLLOWING PROCEDURE SHALL BE UTILIZED TO REPAIR THE SIDEWALK:
 - ALL PORTLAND CEMENT CONCRETE TO BE REMOVED SHALL FIRST BE CUT WITH A CONCRETE SAW THAT HAS A DIAMOND OR CARBORUNDUM ABRASIVE WHEEL. THOSE CUTS SHALL BE MADE TO A DEPTH EQUAL TO AT LEAST ONE-FOURTH OF THE DEPTH OF THE SLAB, OR ENOUGH AS IS DEEMED NECESSARY BY THE DEPARTMENT OF PUBLIC WORKS, TO PERMIT BREAKING OUT THE BALANCE OF THE CONCRETE WITHOUT SPALLING OFF THE EXPOSED EDGES OF THE SLAB LEFT IN PLACE.
 - IF ANY CONCRETE BLOCK IS TOUCHED, THE WHOLE BLOCK SHALL BE REMOVED AND LATER REPLACED, UNLESS A MINOR VARIATION IS AUTHORIZED BY THE DPW OR IT'S REPRESENTATIVE.
 - ANY DAMAGES TO ADJACENT AREAS DUE TO SETTLEMENT OR TO ANY OTHER EFFECTS WHATSOEVER CAUSED BY THE CONSTRUCTION WORK SHALL BE PROPERLY REPAIRED AND CORRECTED.

STRUCTURAL BEST MANAGEMENT PRACTICES (BMPS):

- THE CONTRACTOR SHALL INSPECT EROSION AND SEDIMENT CONTROL MEASURES WEEKLY AND AFTER 0.5 INCHES OF RAINFALL.
- IF REPAIRS TO OR MAINTENANCE OF THE CONTRACTOR'S EROSION CONTROL MEASURES ARE NECESSARY, THE CONTRACTOR SHALL INITIATE THE REPAIRS OR MAINTENANCE WITHIN TWENTY-FOUR (24) HOURS AFTER INSPECTION AND NOTING OF THE DEFICIENCY.

REPAIRS AND MAINTENANCE MAY INCLUDE THE FOLLOWING:

- REPLACING GEO-JUTE FABRIC WHEN TEARS ARE FOUND, AND ENSURING THAT THE FABRIC IS SECURELY ATTACHED FIRMLY IN THE GROUND.
- RESTORING BARE SPOTS AND WASHOUTS, AND ENSURING HEALTHY PLANT GROWTH IN BOTH TEMPORARY AND PERMANENT SEEDED AND PLANTED AREAS.

- THE CONTRACTOR SHALL MAKE EVERY EFFORT TO INSTALL STRUCTURAL BMPS AS NEAR TO THE POLLUTANT SOURCE AS PRACTICABLE. INLET PROTECTION SHALL SERVE AS THE LAST MEASURE TO PREVENT POLLUTANTS FROM ENTERING THE STORM DRAIN SYSTEM.

- THE CONTRACTOR SHALL BACKFILL TRENCHES AND PROVIDE COLD MIX PATCHES TO MATCH ADJOINING PAVEMENT GRADE AT THE END OF EACH WORK DAY.

- STABILIZED CONSTRUCTION ENTRANCE:

ALL POINTS OF EGRESS AND INGRESS TO A SITE SHALL BE PROTECTED WITH A STABILIZED CONSTRUCTION ENTRANCE, 20' X 20' X 8" THICK CRUSHED ROCK LAYER OVER A GEOTEXTILE FABRIC BASE IN THE LOCATION(S) SHOWN ON THE EROSION CONTROL PLAN.

- DUST CONTROL:

DUST CONTROL, INCLUDING DUST BARRIERS, WATERING, ETC., SHOULD BE APPLIED TO REDUCE DUST EMISSIONS. THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL KEEP THE PROJECT AREA AND SURROUNDING AREA FREE FROM DUST NUISANCE. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL STANDARDS CONTAINED IN HAWAII ADMINISTRATIVE RULES: CHAPTER 11-60, "AIR POLLUTION CONTROL",

- SEDIMENT BARRIERS OR TRAPS:

SEDIMENT TRAPPING DEVICES SUCH AS FENCES, TRAPS, BASINS OR BARRIERS SHALL BE USED DOWN SLOPE OF ALL DISTURBED AREAS AND AROUND THE BASE OF ALL MATERIAL STOCKPILES.

- INLET PROTECTION:

ALL STORM DRAIN INLETS ON SITE, AND THOSE OFFSITE WHICH MAY RECEIVE RUNOFF FROM THE SITE SHALL USE AN INLET PROTECTION DEVICE.

- PERMANENT STABILIZATION:

ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED PRIOR TO REMOVING EROSION AND SEDIMENT MEASURES. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED. TRAPPED SEDIMENT AND AREAS OF DISTURBED SOIL WHICH RESULT FROM THE REMOVAL OF THE TEMPORARY MEASURES SHALL BE IMMEDIATELY PERMANENTLY STABILIZED.

LEGEND:

A.C.	ASPHALT CONCRETE	NIC	NOT IN CONTRACT
ARV	AIR RELEASE VALVE	OH	OVERHEAD
BOT.	BOTTOM	PAV'T	PAVEMENT
BW	BOTTOM WALL	PE	PAD ELEVATION
C.O.	CLEAN OUT	S	SEWER OR SPREAD
COCN.	CONCRETE	SDMH	STORM DRAIN MANHOLE
CRM	CONCRETE RUBBLE MASONARY	SMH	SEWER MANHOLE
D	DIAMETER OR DRAIN	SS	SANITARY SEWER
E/ELEC.	ELECTRIC	ST.	STREET
ELEV./E	ELEVATION	STA.	STATION
FFE	FINISH FLOOR ELEVATION	TB	TOP OF BOX
F.H.	FIRE HYDRANT	TG	TOP OF GRATE
G.P.	GUARD POST/GUY POLE/GATE POST	TP	TOP PIPE
H	HEIGHT	TS	TOP STEM
IG	INVERT GRADE	TV	TOP VALVE
INV.	INVERT	TW	TOP WALL
M.B.	MAIL BOX	U.P.	UTILITY POLE
MH	MANHOLE	U.P./S.L.	UTILITY POLE W/STREET LIGHT
MON	MONUMENT	W	WATER
		WM	WATER METER
		WMH	WATER MANHOLE
		WV	WATER VALVE BOX

REVISIONS					
No.	DATE	BY	CHK.	DATE	PRINTS TO

This work was prepared by me or under my supervision and construction of this project was done under my direction.
 Exp. 04-30-16
 W. Lee
 WESLEY F. SEGAWA & ASSOCIATES, INC.
 Civil & Structural Engineers



WRSA
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 Civil & Structural Engineers
 101 Silva Street, Suite 201 Hilo, Hawaii 96720-4755
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Project Title: **KEAUKAHA TRACT 1 IMPROVEMENTS**
 Sheet Title: **LOTS 279-A & 279-B MISCELLANEOUS NOTES**

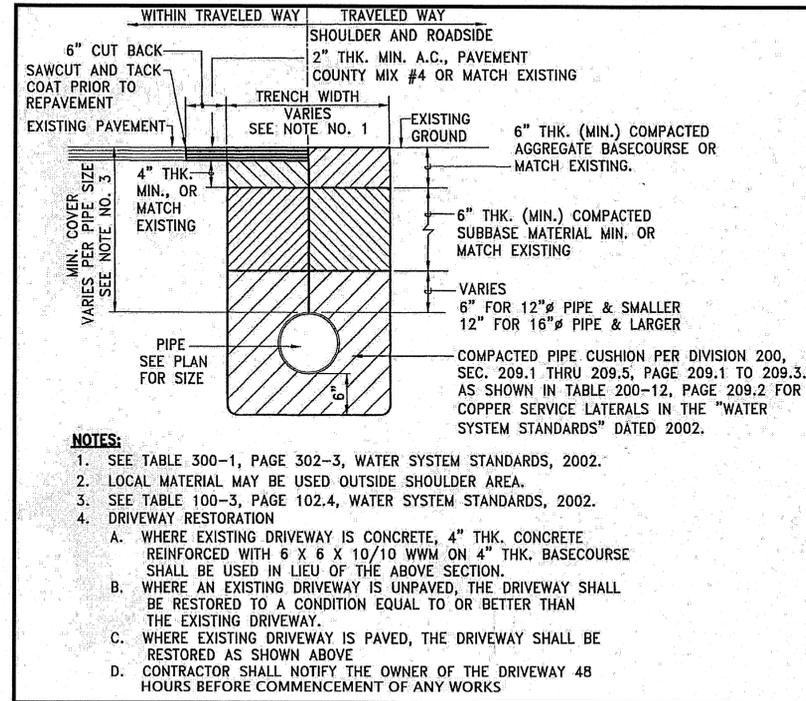
DESIGN BY: DRB
DRAWN BY: DRB
CHECKED BY: DL
APPROVED BY: DL
DATE: SEPT. 2015
SCALE: AS NOTED
FILE No. W1302.47

DRAWING No. **C-1**

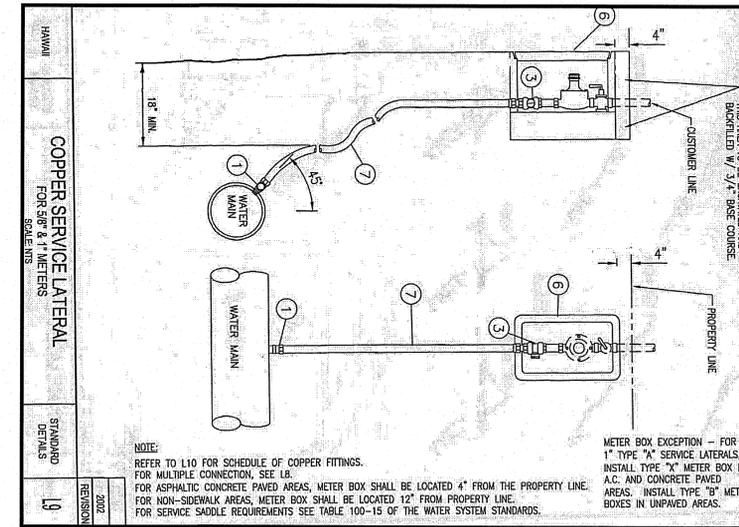
SHEET No. **2**
 OF **9** SHTS.

WATERLINE NOTES:

- ALL WORK SHALL BE DONE ACCORDING TO THE WATER SYSTEM STANDARDS, STATE OF HAWAII, DATED 2002, AS AMENDED.
- ALL EXISTING WATERLINES, WATERLINE, APPURTENANCES AND OTHER UTILITY LOCATIONS SHOWN ON THE PLANS ARE OBTAINED FROM THE LATEST RELIABLE SOURCES. THE CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY THE EXACT LOCATION OF ALL UTILITIES IN THE FIELD AND SHALL BEAR ALL COSTS FOR DAMAGE DONE DURING THE CONTRACT PERIOD.
- THE CONTRACTOR SHALL INFORM THE D.W.S. ENGINEER 72 HOURS PRIOR TO THE BEGINNING OF ANY WATERLINE WORK AND TWO WEEKS PRIOR TO ANY CONNECTION, CHLORINATION, SHUT-OFF OR RELOCATION WORK.
- ALL CONNECTIONS TO THE WATER SYSTEMS SHALL BE DONE BY THE D.W.S. THE CONTRACTOR SHALL PERFORM ALL EXCAVATION, BACKFILL, ROAD REPAIR, TRAFFIC CONTROL, AND PROVIDE EQUIPMENT AND MATERIALS NECESSARY TO COMPLETE THE CONNECTION.
- THE CONTRACTOR SHALL PAY FOR ALL WORK, EQUIPMENT, AND MATERIAL FURNISHED BY THE D.W.S.
- MINIMUM VERTICAL CLEARANCE BETWEEN WATERLINES AND OTHER UTILITIES SHALL BE 12-INCHES PROVIDED THE OTHER UTILITY IS CONCRETE JACKETED, AND 18-INCHES IF NO CONCRETE JACKETS ARE USED. IN ALL APPLICABLE INSTANCES, THE WATERLINES SHALL BE AT A GRADE HIGHER THAN OTHER UTILITIES. UTILIZE PERPENDICULAR CROSSINGS WHERE PRACTICABLE FOR WATERLINES, CENTER FULL PIPE LENGTHS AT UTILITY CROSSINGS WHENEVER POSSIBLE.
- MINIMUM HORIZONTAL CLEARANCE BETWEEN WATERLINES AND OTHER UTILITIES SHALL BE 8-FEET (CLEAR SPACE - NOT CENTERLINE TO CENTERLINE) FOR ROAD RIGHT-OF-WAYS OF 50 FEET OR LESS, AND 10-FEET FOR ROAD RIGHT-OF-WAYS OF MORE THAN 50 FEET.
- ALL WATER SYSTEM PIPELINES, 4-INCHES OR LARGER IN DIAMETER, SHALL BE DUCTILE IRON, PUSH ON JOINTS, CLASS 52, AND ALL PIPELINES SMALLER THAN 4-INCHES IN DIAMETER SHALL BE SOFT COPPER, TYPE "K", UNLESS OTHERWISE SPECIFIED.
- PIPE CUSHION FOR COPPER SERVICE LATERALS SHALL BE NO. 4 MANUFACTURED FINE SAND.
- METER BOXES FOR 5/8-INCH METERS PLACED OUTSIDE OF PAYMENT TO BE TYPE "B" PER STD DETAILS M1 & M2. METER BOXES FOR 1-INCH METERS OR FOR 5/8-INCH STD DETAIL M3.
- RELOCATION OF EXISTING METERS SHALL BE DONE UNDER D.W.S. SUPERVISION. RELOCATION OF CUSTOMER SERVICE LINES TO RELOCATED METERS SHALL BE COPPER (TYPE "K") AND DONE BY THE CONTRACTOR. ALL WORK AND MATERIALS SHALL BE PROVIDED BY THE CONTRACTOR AND CONSIDERED INCIDENTAL TO THE RELOCATION WORK. EXISTING METER BOXES DAMAGED BY THE CONTRACTOR SHALL BE REPAIRED AT THE CONTRACTOR'S COST. WHEN APPLICABLE, A DIELECTRIC UNION SHALL BE USED TO CONNECT THE COPPER PIPE TO THE CUSTOMER'S GALVANIZED IRON (G.I.) PIPE.
- SOLDER (1/8-INCH DIA.) AND FLUX USED SHALL NOT CONTAIN MORE THAN 0.2% LEAD
- LOTS REQUIRING A DEPARTMENT OF WATER SUPPLY APPROVED BACKFLOW PREVENTION ASSEMBLY SHALL HAVE ONE. IT MUST BE INSTALLED ON PRIVATE PROPERTY IN ACCORDANCE WITH D.W.S. STANDARD DETAIL NO. V9 AND DEPARTMENTAL STAFF MUST APPROVE THE INSTALLATION BEFORE WATER SERVICE CAN BE STARTED.
- WHERE WATER SHUT-OFF OF MORE THAN 3 HOURS BECOMES NECESSARY, THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL PROVIDE A TEMPORARY BY-PASS LINE. THE DWS ENGINEER SHALL DETERMINE THE BY-PASS LINE SIZE. IF NECESSARY, THE DWS ENGINEER MAY REQUIRE A BY-PASS LINE, REGARDLESS OF THE EXPECTED SHUT-OFF PERIOD.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR RECORD DRAWINGS (AS-BUILT DRAWINGS) AND THE LICENSED ENGINEER SHALL CERTIFY THE DRAWINGS AS TO ACCURACY AND SUBMIT THE DRAWINGS AND AS-BUILT TRACINGS TO THE DWS.
- AFTER JANUARY 4, 2014, ALL BRASS PRODUCTS MUST CONFORM TO NSF STANDARD 61 AND NSF STANDARD 372 OF THE SDWA, AND BE CERTIFIED AS "LEAD-FREE" BY THE MANUFACTURER. "LEAD-FREE" IS DEFINED AS THE ALLOWABLE LEAD CONTENT OF NOT MORE THAN 0.25% IN THE WETTED SURFACE. CERTIFICATION FROM THE MANUFACTURER MUST BE SUBMITTED TO THE DEPARTMENT OF WATER SUPPLY FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION. ANY BRASS PRODUCT INSTALLED WITHOUT APPROVAL MUST BE REMOVED AT NO EXPENSE TO THE DEPARTMENT.
- BOXED WATERLINE DETAILS BELOW TAKEN FROM THE WATER SYSTEM STANDARDS.



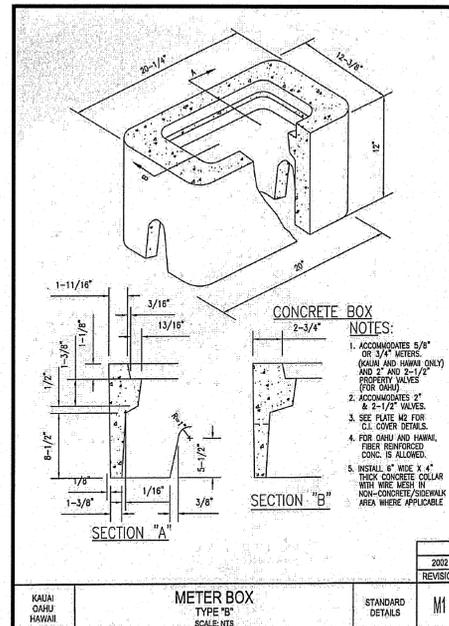
1 TYPICAL TRENCH AND PAVEMENT
C-3 REPAIR SECTION FOR WATERLINES
NOT TO SCALE



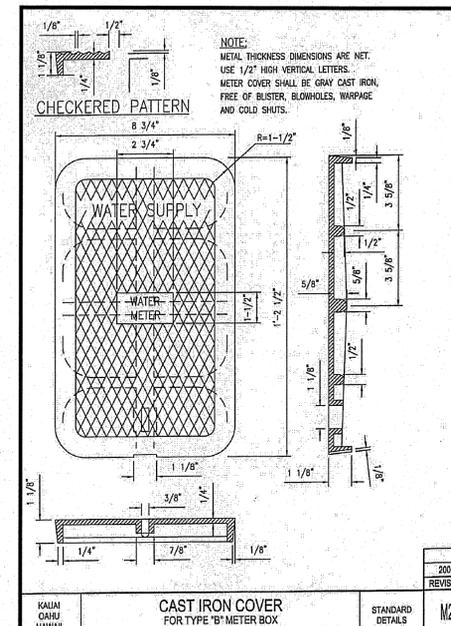
2 TYPICAL SINGLE SERVICE LATERAL
C-3 NOT TO SCALE

SERVICE LATERAL AND CONNECTION MATERIAL SCHEDULE											
SERVICE CONNECTION MATERIAL											
TYPE	SIZE	BRONZE BALL CORP. (a)		BRONZE CURB STOP (b)		TEE COUC (c)		90° ELBOW COUC STYLE		METER BOX	
		SIZE	QTY.	SIZE	QTY.	SIZE	QTY.	SIZE	QTY.	SIZE	QTY.
A	1-1/2	1	1	1	1	1	1	1	1	1	1
B	1-1/2	1	1	1	1	1	1	1	1	1	1
C	1-1/2	1	1	1	1	1	1	1	1	1	1
D	1-1/2	1	1	1	1	1	1	1	1	1	1

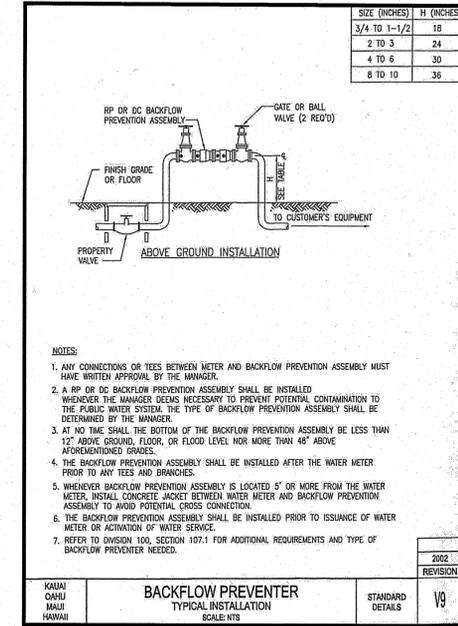
3 SCHEDULE OF COPPER FITTINGS
C-3 NOT TO SCALE



4 METER BOX TYPE "B"
C-3 NOT TO SCALE



5 CAST IRON COVER FOR
C-3 TYPE "B" METER BOX
NOT TO SCALE



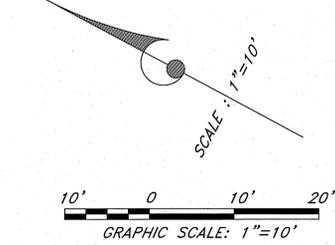
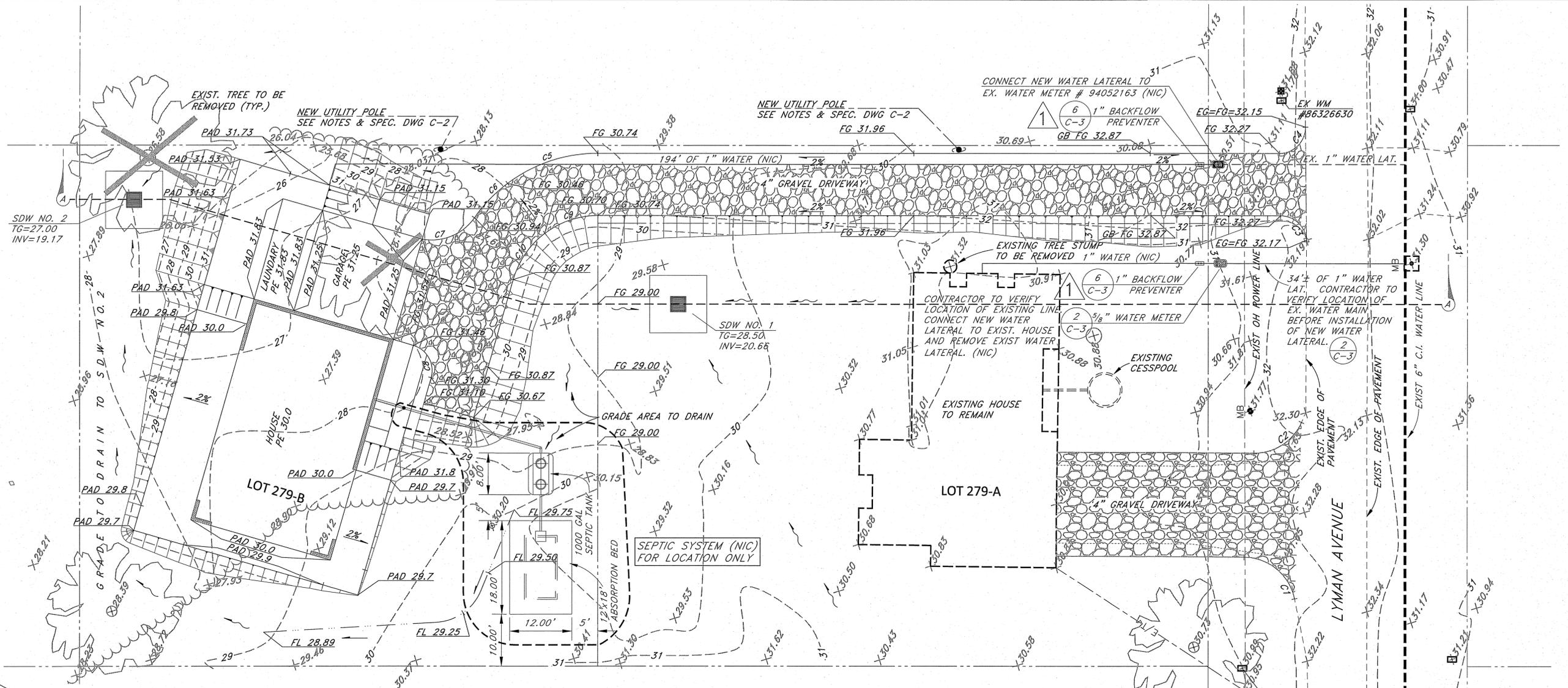
6 BACKFLOW PREVENTER
C-3 NOT TO SCALE

NO.	DATE	DESC.	CHKD.	REVISIONS
1	4/5/2016	3, 4, 5, 7, & 8		INSTALL BACKFLOW PREVENTER

This work was prepared by me or under my supervision and construction of this project will be under my observation.
 W. Wesley R. Segawa & Associates, Inc.
 LICENSED PROFESSIONAL ENGINEER
 No. 4004-C
 HAWAII

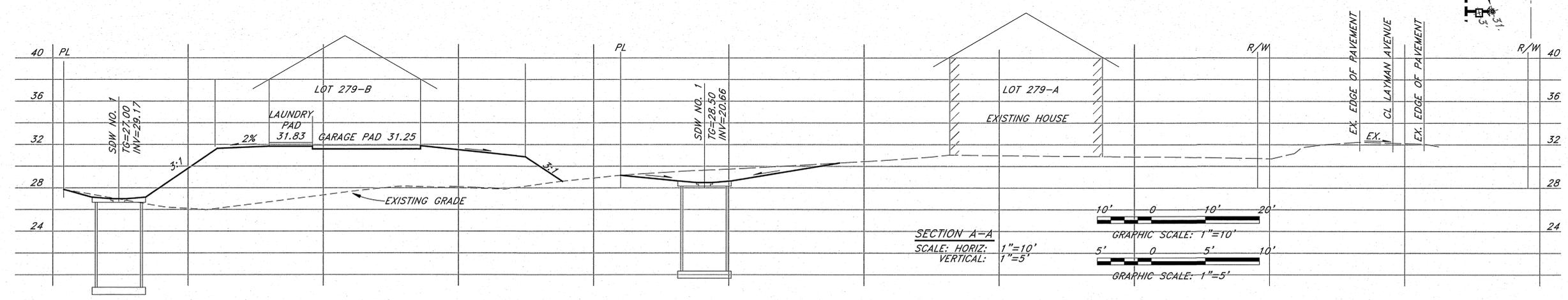
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 201 Silvers Street, Suite 201 Fifth, Hawaii 96720-4755
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Project Title: KEAUKAHA TRACT 1 IMPROVEMENTS
 Lots 279-A & 279-B
 Sheet Title: WATER NOTES & DETAILS
 DESIGN BY: DRB
 DRAWN BY: DRB
 CHECKED BY: DL
 APPROVED BY: DL
 DATE: SEPT. 2015
 SCALE: AS NOTED
 FILE NO. W1302.47
 DRAWING NO. C-3
 SHEET NO. 4
 OF 9 SHTS.



Curve Table					
Curve #	Length	Radius	Delta	Chord Direction	Chord Length
C1	13.66	10.00	78.26	N11° 19' 39"E	12.62
C2	11.57	10.00	66.27	S60° 56' 03"E	10.93
C3	7.85	5.00	89.97	N16° 53' 14"E	7.07
C4	7.90	5.00	90.55	S73° 22' 35"E	7.11
C5	18.70	29.00	36.95	N46° 34' 30"W	18.38

Curve Table					
Curve #	Length	Radius	Delta	Chord Direction	Chord Length
C6	9.25	29.00	18.28	N74° 11' 22"W	9.21
C7	11.50	10.00	65.89	S50° 22' 58"E	10.88
C8	7.85	5.00	90.00	N33° 00' 00"E	7.07
C9	10.96	17.00	36.95	N46° 34' 30"W	10.77
C10	10.96	17.00	36.95	N83° 31' 30"W	10.77



No.	DATE	BY	CHK.	REVISIONS
1	4/5/2016	DRB	DL	INSTALL BACKFLOW PREVENTER
2				3, 4, 5, 7, & 8

This work was prepared by me or under my supervision and construction of this project was supervised by me or under my supervision.

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Wesley R. Sogawa, P.E.
 Licensed Professional Engineer
 No. 4004-C
 HAWAII

WRSA
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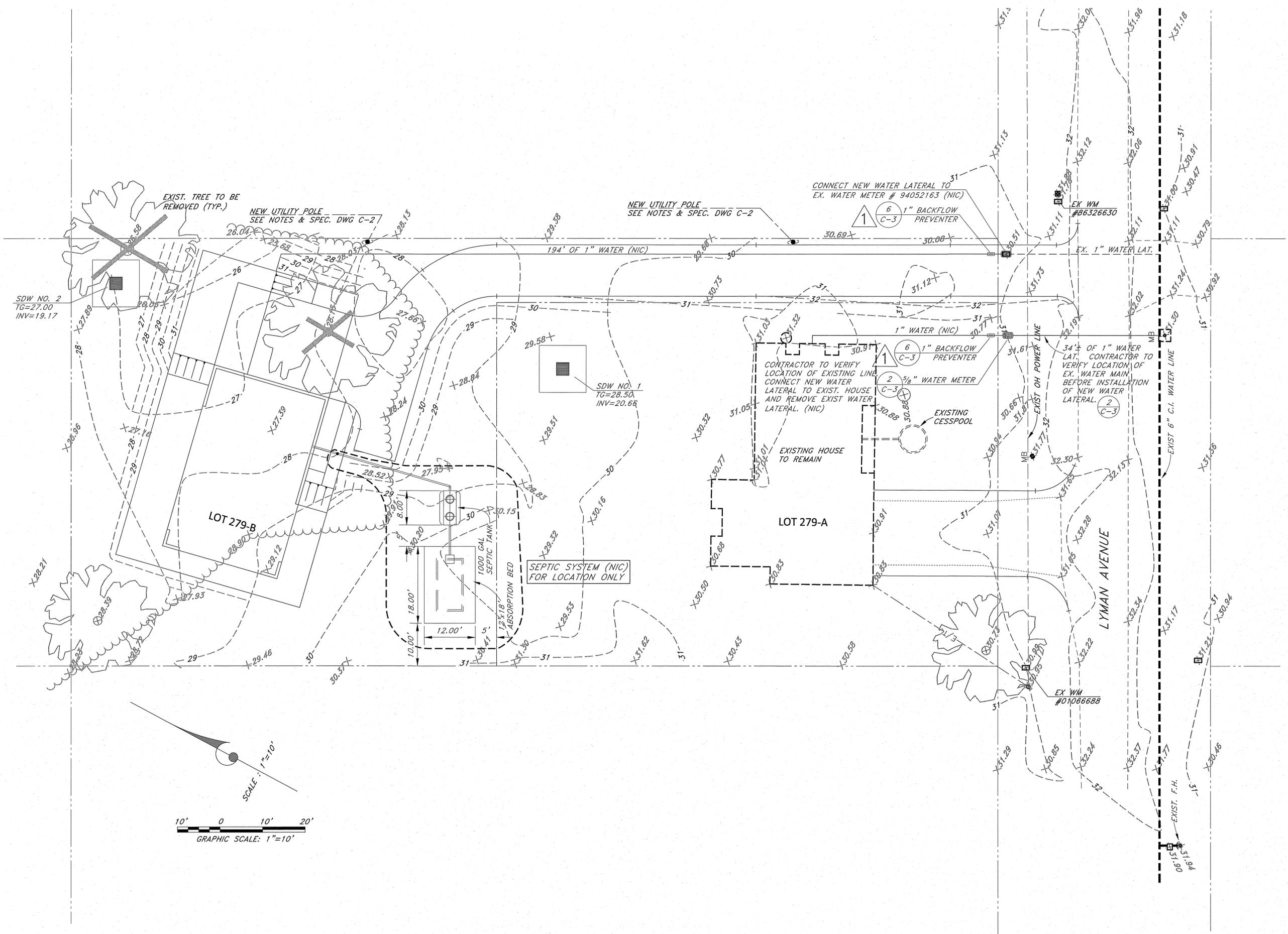
101 Silve Street, Suite 201 Hilo, Hawaii 96720-4755
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Project Title: KEAUKAHA TRACT 1 IMPROVEMENTS
 Sheet Title: LOTS 279-A & 279-B GRADING AND DRAINAGE PLAN

DESIGN BY: DRB
DRAWN BY: DRB
CHECKED BY: DL
APPROVED BY: DL
DATE: SEPT. 2015
SCALE: AS NOTED
FILE No. W1302.47

DRAWING No. **C-4**

SHEET No. 5 OF 9 SHTS.



NO.	DATE	BY	REVISIONS
1	4/5/2016	DL	INSTALL BACKFLOW PREVENTER

This work was prepared by me or under my direct supervision and I am a duly Licensed Professional Engineer. Exp. 04-30-16.

Wesley R. Sogawa & Associates, Inc.
 W. Sogawa, P.E.
 No. 4004-C
 HAWAII



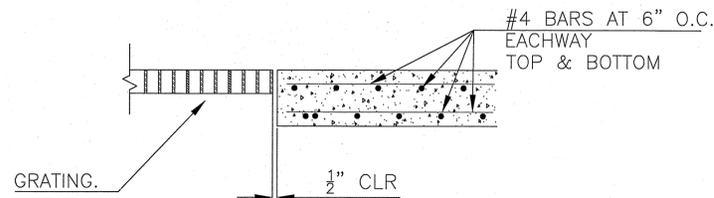
Project Title: KEAUKAHA TRACT 1 IMPROVEMENTS LOTS 279-A & 279-B

Sheet Title: UTILITY PLAN

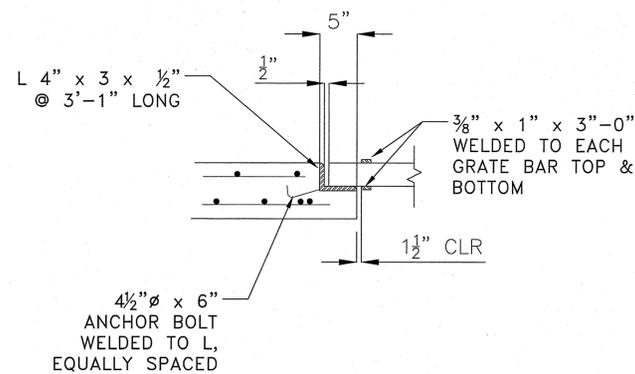
DESIGN BY:	DRB
DRAWN BY:	DRB
CHECKED BY:	DL
APPROVED BY:	DL
DATE:	SEPT. 2015
SCALE:	AS NOTED
FILE No.	W1302.47

DRAWING No. C-5

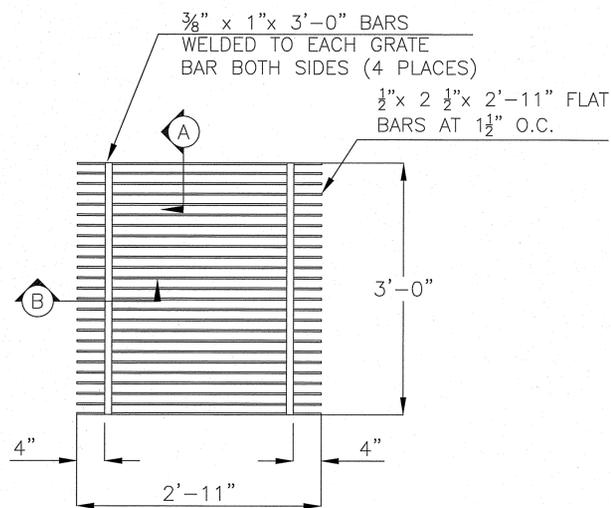
SHEET No. 6 OF 9 SHTS.



SECTION A-A
NOT TO SCALE



SECTION B-B
NOT TO SCALE



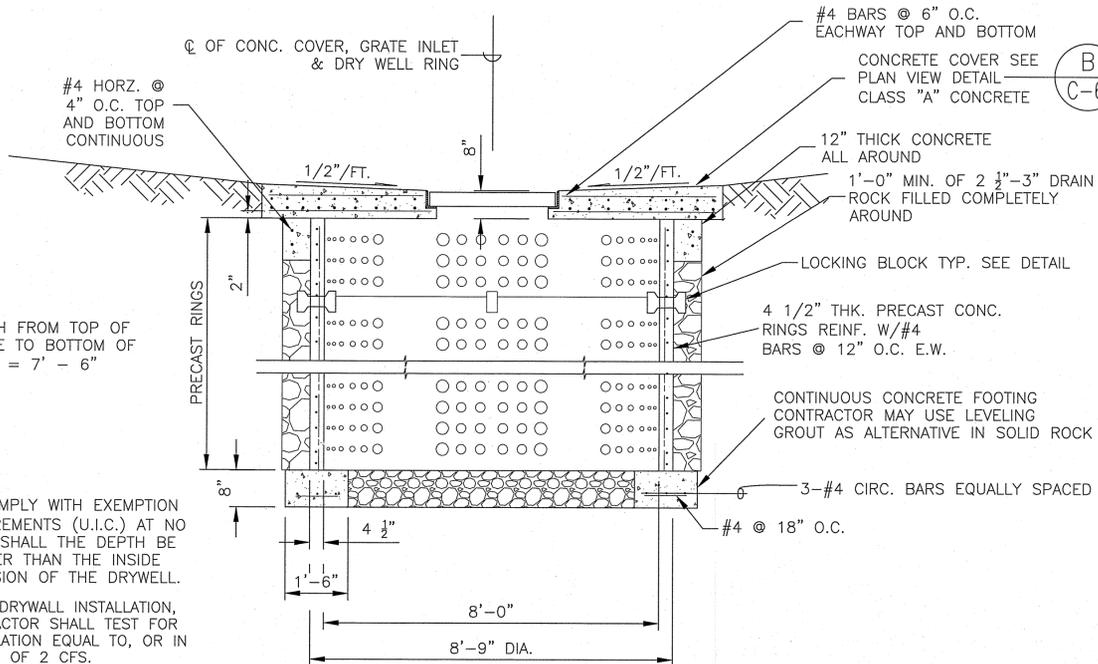
GRATING
NOT TO SCALE

(A) DRYWELL GRATE DETAIL
C-6 NOT TO SCALE

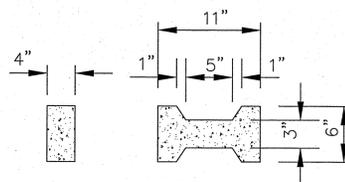
DEPTH FROM TOP OF GRATE TO BOTTOM OF HOLE = 7' - 6"

NOTES:

1. TO COMPLY WITH EXEMPTION REQUIREMENTS (U.I.C.) AT NO POINT SHALL THE DEPTH BE GREATER THAN THE INSIDE DIMENSION OF THE DRYWELL.
2. AFTER DRYWELL INSTALLATION, CONTRACTOR SHALL TEST FOR PERCOLATION EQUAL TO, OR IN EXCESS OF 2 CFS.

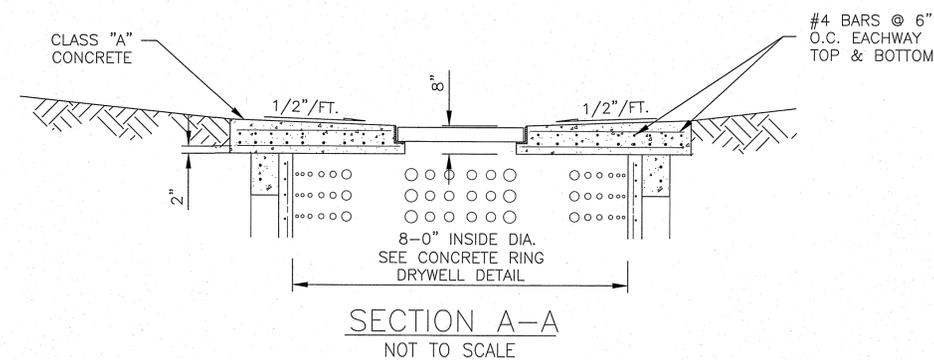


CONCRETE RING DRYWELL
NOT TO SCALE

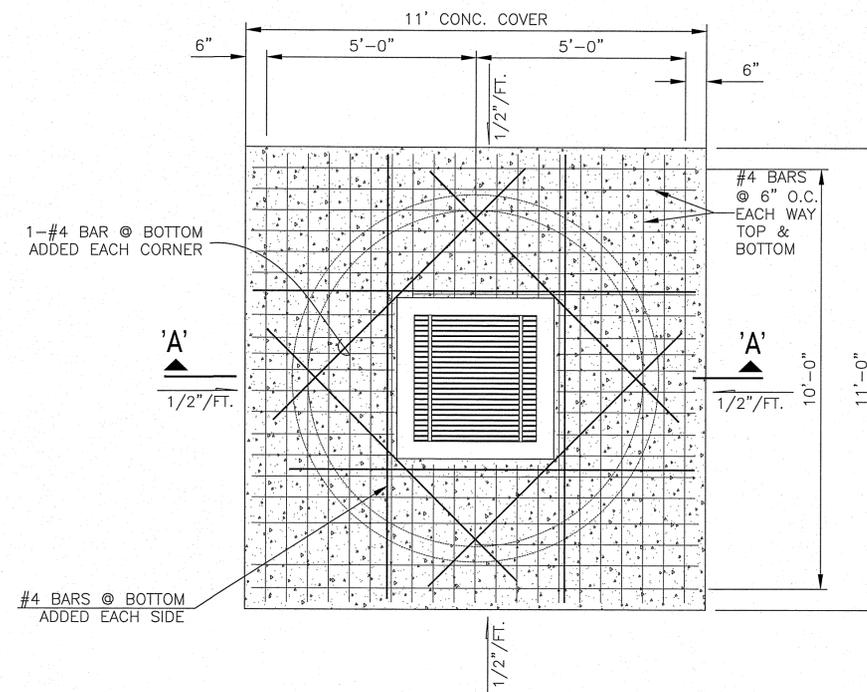


TYPICAL RING CROSS SECTION
NOT TO SCALE

(B) CONCRETE DRYWELL DETAIL
C-6 NOT TO SCALE



SECTION A-A
NOT TO SCALE



PLAN
NOT TO SCALE

NO.	DATE	BY	CHK	REVISIONS

This work was prepared by me or under my direct supervision and I am a duly licensed professional engineer. Exp. 04-30-16

Wesley R. Segawa & Associates, Inc.

Wesley R. Segawa, P.E.

Professional Engineer
No. 4004-C
HAWAII

WRSA

Wesley R. Segawa and Associates, Inc.
Civil & Structural Engineers
committed to quality performance & value

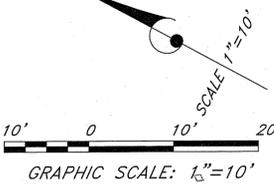
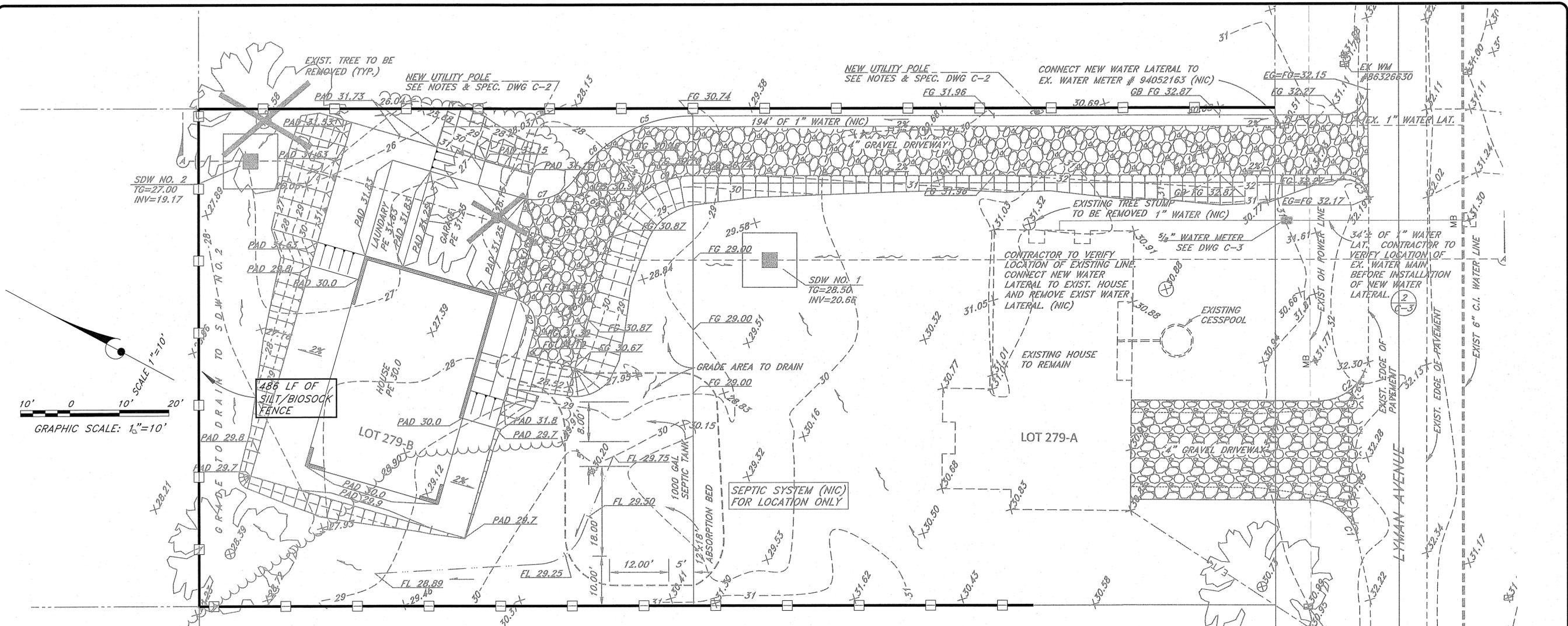
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Project Title: KEAUKAHA TRACT 1 IMPROVEMENTS
LOTS 279-A & 279-B
SHALLOW DRYWELL DETAILS

Sheet Title:

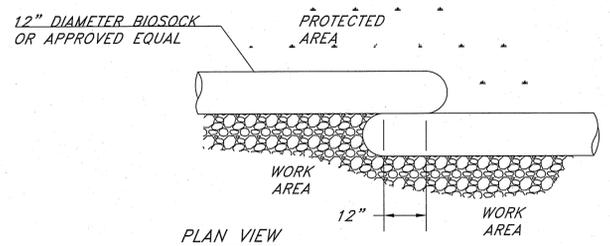
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FILE No. W1302.47

DRAWING No.
C-6
SHEET No.
7
OF 9 SHEETS.



CLEAR AND GRUBBING NOTES:

- CLEAR ALL SURFACE AREAS AND GRUB AREAS BELOW NATURAL GROUND SURFACES FOR THE DESIGNATED LOTS. ENSURE THAT ALL BMP MEASURES ARE IN PLACE BEFORE CLEARING AND GRUBBING STARTS.
- CLEARING IS DEFINED AS REMOVING AND DISPOSING OF ALL UNWANTED SURFACE MATERIALS, SUCH AS TREES, BRUSH, GRASS, WEEDS, DOWNED TREES, AND OTHER MATERIAL.
- GRUBBING IS DEFINED AS REMOVING AND DISPOSING OF ALL UNWANTED VEGETATION MATTER FROM UNDERGROUND, SUCH AS STUMPS, ROOTS, BURIED LOGS, AND OTHER MATERIAL.
- DEBRIS IS DEFINED AS USABLE OR UNWANTED MATERIAL PRODUCED BY CLEARING AND GRUBBING.
- CLEARING AND GRUBBING ALSO INCLUDES HERBICIDE MAINTENANCE. HERBICIDE MAINTENANCE INCLUDES APPLICATION OF WEED CONTROLLING CHEMICALS, APPLIED ONCE PER MONTH FREQUENCIES FOR ONE YEAR (12 MONTHS) DURATION. THE SELECTED HERBICIDE IS ROUND UP (GLYPHOSATE) OR AN EQUAL HERBICIDE CHEMICAL, TO BE APPROVED BY DHHL. THE HERBICIDE DOSAGE USED IN ALL APPLICATIONS SHALL BE FOR DESTROYING BROADLEAF WEEDS.
- LIMITS - CLEARING AND GRUBBING WORK IS INTENDED TO BE WITHIN THE HOUSE LOT PARCEL. ANY WORK OUTSIDE OF THE HOUSE LOT PARCEL REQUIRES PRIOR APPROVAL BY DHHL AND THE AFFECTED ADJACENT LEASE HOLDER.
- REMOVAL AND DISPOSAL OF MATERIAL - REMOVE MATERIAL AND DEBRIS, AND DISPOSE OF AT AN AUTHORIZED DISPOSAL SITE. OBTAIN WRITTEN AUTHORIZATION FROM PROPERTY OWNERS AND GOVERNMENT AUTHORITIES FOR DISPOSAL LOCATIONS OUTSIDE ROAD-RIGHT-OF-WAY LIMITS. LEAVE AREAS WITH NEAT AND FINISHED APPEARANCE.

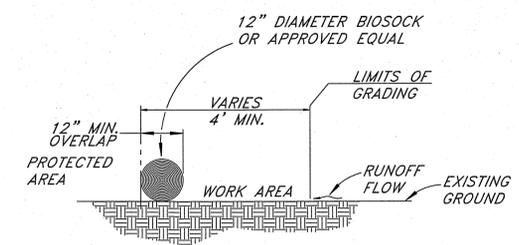


BIO SOCK DETAIL (12" DIA)
NOT TO SCALE

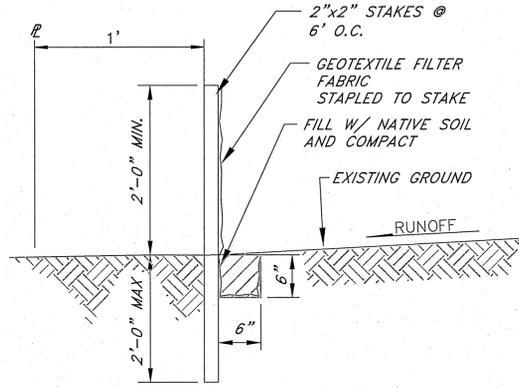
LEGEND:



SILT FENCE/BIO SOCK



ELEVATION VIEW



SILT FENCE NOTES:

BIO SOCK MAYBE USED IN LIEU OF SILT FENCE.
THE CONTRACTOR SHALL INSTALL SILT FENCES OR BIO-SOCK PRIOR TO CONSTRUCTION.
ALL BEST MANAGEMENT PRACTICES (BMP'S) SHALL NOT BE REMOVED UNTIL ALL PERMANENT EROSION CONTROL MEASURES ARE IN PLACE AND ESTABLISHED.
AT THE END OF GRADING OPERATIONS, EXISTING CB'S AND DMH'S SURROUNDING THE PROJECT SITE SHALL BE INSPECTED AND ANY ACCUMULATED SEDIMENT AND DEBRIS FOUND IN THE DRAIN STRUCTURES SHALL BE REMOVED. FLUSHING INTO THE CB'S AND DMH'S ARE PROHIBITED.

SILT FENCE DETAIL
NO SCALE

EROSION CONTROL NOTES:

- THE CONTRACTOR SHALL REFER TO THE RULES RELATING TO SOILS EROSION STANDARDS AND GUIDELINES, APRIL 1999, BY THE CITY AND COUNTY OF HONOLULU DEPARTMENT OF PLANNING AND PERMITTING FOR BEST MANAGEMENT PRACTICES.
- THE CONTRACTOR SHALL STABILIZE THE CONSTRUCTION SITE AT ALL POINTS OF EGRESS AND INGRESS WITH A 12' WIDE X 20' LONG X 8" DEEP SECTION OF NO. 2 CRUSHED ROCK.
- STOCKPILES SHALL NOT BE LOCATED IN DRAINAGE WAYS OR OTHER AREAS OF CONCENTRATED FLOWS. SEDIMENT TRAPPING DEVICES SUCH AS FENCES, TRAPS, BASINS OR BARRIERS SHALL BE USED AROUND THE BASE OF ALL STOCKPILES.
- DUST CONTROL SHOULD BE APPLIED TO REDUCE DUST EMISSIONS. THE CONTRACTOR, AT THEIR OWN EXPENSE, SHALL KEEP THE PROJECT AREA AND SURROUNDING AREA FREE FROM DUST NUISANCE. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL STANDARDS CONTAINED IN HAWAII ADMINISTRATIVE RULES: CHAPTER 11-60, "AIR POLLUTION CONTROL".
- SURFACE FLOW FROM ABOVE AN EXPOSED SLOPE SHALL NOT BE ALLOWED TO FLOW OVER THE SLOPE WITHOUT PROTECTION. SLOPE PROTECTION SHALL BE USED ON AREAS WITH SLOPES GREATER THAN 50% AND ON AREAS OF MODERATE SLOPES THAT ARE PRIME TO EROSION.
- ALL STORM DRAIN INLETS ON SITE, AND THOSE OFFSITE WHICH MAY RECEIVE RUNOFF FROM THE SITE SHALL USE AN INLET PROTECTION DEVICE.
- TEMPORARY STABILIZATION IS NOT REQUIRED WHEN THE DISTURBED AREA WILL BE WORKED WITHIN A 14 DAY PERIOD. STABILIZATION IS REQUIRED FOR DISTURBED AREAS AT FINAL GRADE AND FOR THOSE AREAS THAT WILL NOT BE WORKED WITHIN A 14 DAY PERIOD.
- ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED PRIOR TO REMOVING EROSION AND SEDIMENT MEASURES. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED. TRAPPED SEDIMENT AND AREAS OF DISTURBED SOIL WHICH RESULT FROM THE REMOVAL OF THE TEMPORARY MEASURES SHALL BE IMMEDIATELY PERMANENTLY STABILIZED.

NO.	DATE	DWG. CHK.	REVISIONS

This work was prepared by me or under my supervision and construction of this project was under my observation.
Exp. 04-30-16
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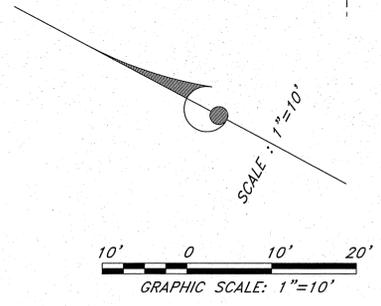
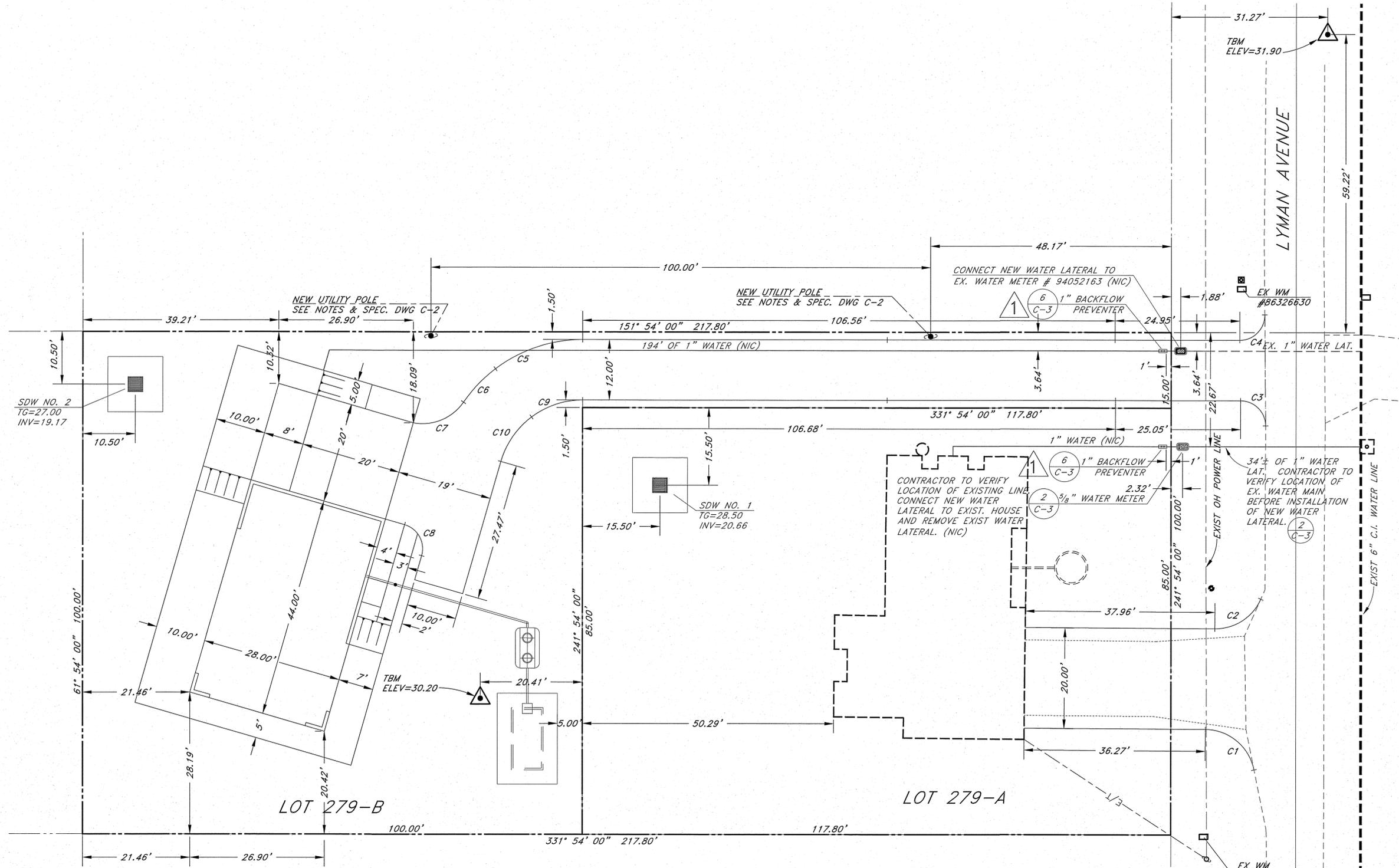


Project Title: **KEAUKAHA TRACT 1 IMPROVEMENTS LOTS 279-A & 279-B EROSION CONTROL (BMP) PLAN**
Sheet Title:

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DRAWING No. **C-7**

SHEET No. **8**
OF **9** SHTS.



Curve Table					
Curve #	Length	Radius	Delta	Chord Direction	Chord Length
C1	13.66	10.00	78.26	N11° 19' 39"E	12.62
C2	11.57	10.00	66.27	S60° 56' 03"E	10.93
C3	7.85	5.00	89.97	N16° 53' 14"E	7.07
C4	7.90	5.00	90.55	S73° 22' 35"E	7.11
C5	18.70	29.00	36.95	N46° 34' 30"W	18.38

Curve Table					
Curve #	Length	Radius	Delta	Chord Direction	Chord Length
C6	9.25	29.00	18.28	N74° 11' 22"W	9.21
C7	11.50	10.00	65.89	S50° 22' 58"E	10.88
C8	7.85	5.00	90.00	N33° 00' 00"E	7.07
C9	10.96	17.00	36.95	N46° 34' 30"W	10.77
C10	10.96	17.00	36.95	N83° 31' 30"W	10.77

No.	DATE	BY	REVISIONS
1	4/5/2016	DL	INSTALL BACKFLOW PREVENTER

This work was prepared by me or under my direct supervision and I am a duly Licensed Professional Engineer in the State of Hawaii. My license number is 4904-C.

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WRSA
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 Licensed Professional Engineer
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Project Title: KEAUKAHA TRACT 1 IMPROVEMENTS LOTS 279-A & 279-B
 Sheet Title: DIMENSION PLAN

DESIGN BY: DRB
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DRAWING No. **C-8**
 SHEET No. **9**
 OF **9** SHTS.